

5. THE MASTER PLAN UPDATE FOR THE NNMCM BETHESDA CAMPUS

This chapter includes future development of the campus with summaries of the existing facilities anticipated to grow and proposed direction in terms of land use for that growth. Requirements for BRAC 2005 and additional growth, in terms of BRAC support and other potential growth, are included. The current status of ongoing efforts are described along with effects on the master plan where applicable. Refinements will continue to occur throughout the design processes, but this chapter provides a general development direction.

5.1 Participating Offices

The largest portion of growth at NNMCM in the period covered by this Master Plan is a result of the BRAC requirements. Several offices were established to ensure the success of the BRAC 2005 realignment of WRAMC functions to NNMCM, both in terms of identifying requirements and ensuring a smooth functional integration. Members of these offices participated in the process to identify supporting requirements identified in the master plan update. Community and local agencies were involved in the EIS process during the scoping meetings and open comment sessions to address community concerns and ensure plans at NNMCM fit within the local and regional plans and goals.

Since the announcement of BRAC 2005, there have been a number of studies, offices and personnel involved in the evaluation of development options. These evaluations have been completed to ensure fulfillment of identified requirements. The process is evolving and the organizations have changed to meet that evolution. Below are some of the offices and organizations that have been involved in the detailed process.

5.1.1 Office of Integration (OI)

In October 2005, shortly after the BRAC announcement and approval, the Office of Integration was established. The purpose of this entity is to oversee the transformation of the Military Healthcare System (MHS) in the National Capital Area (NCA). While the combining of the NNMCM and some functions and staff from WRAMC is a large component of the effort, integration will impact all local treatment facilities. The Office of Integration works closely with all facility commanders and the USUHS leaders. The Office of Integration guides functional integration which precedes the physical moves of BRAC. They evaluate, realign and prepare separate departments and functions to work efficiently as a single department or entity. They are instrumental in the realignment of NNMCM and WRAMC into the new WRNMCM.

Within the Office of Integration is the Integration Steering Committee and subcommittees that have fluctuated in number and need throughout the planning process.

Adult Primary Care

Emergency Medicine
Executive Medicine
Internal Medicine
Family Practice
Optometry
Physical Exams

Behavioral Health

Family Advocacy
Outpatient Integrated Adult
Partial Hospitalization
Preventive and Consultative Services
Substance Abuse

Cancer Care

Breast Cancer
Gynecology
Hem and Onc Pharmacy
Medical Oncology
Prostate Center
Radiation Oncology

Cardiovascular-Pulmonary

Cardiology
Cardiothoracic Surgery
Integrative Cardiac Health Program
Interventional Imaging
Pulmonary Clinic
Respiratory Services
Vascular Surgery

Children's' Health Services

Adolescent Medicine
Armed Forces Center for Child Protection
Behavioral Health
Exceptional Family Member Program
General Pediatrics
Pediatric Hematology and Oncology
Pediatric Sedation and Procedures
Early Intervention
Pediatric Subspecialty

Musculoskeletal

Amputee Center
Chiropractic Services
Occupational Therapy
Orthopedic and Podiatry Clinic

Orthotics and Prosthetics
Physical Medicine and Rehab
Physical Therapy
Sports Medicine

Neurosciences Defense and Veterans Brain Injury Center (DVBIC)

Neurology

Operational Medicine

Community Health Nursing
Deployment Health
Environmental Health
Medical Readiness and Deployment
Industrial Hygiene
Occupational Health
Preventive Medicine

Pathology

Anatomic Pathology
Blood Donor Center
Clinical Pathology
Infectious Disease Laboratories
Transfusion and Pheresis Services

Pharmacy

Clinical, Outpatient
Inpatient
Investigational Research

Radiology

Breast Care Center
Health Physics and Radiation Safety
Diagnostic Radiology
Nuclear Medicine

Special Medical

Allergy and Immunology
Dermatology
Endocrinology
GI and Virtual Colonoscopy
Infectious Disease
HIV Program
Nephrology
Rheumatology
Sleep Medicine
Vaccine Healthcare

Surgery and Specialty Surgery

Audiology and Speech Pathology
ENT
General Surgery
Neurosurgery
Ophthalmology
Plastic Surgery
Transplant
Urology

Women's Health

OB/GYN
Reproductive Endocrinology
URO/GYN

Operative Services

Anesthesia
Central Sterile
Operating Suites
Holding and PACU
Same Day Surgery
Admissions and Support

Nursing Units

Medical
Surgical
ICU
IMCU
Behavioral Health

5.1.2 JTF CapMed

In September of 2007, the Joint Task Force National Capital Region Medical (JTF CapMed), a fully functional Standing Joint Task Force, was established. Located on the NNMC campus and reporting directly to the Secretary of Defense through the Deputy Secretary of Defense, the newly formed Command is charged with leading the way for the effective and efficient consolidation and realignment of military healthcare in the NCR. The command will be fully functional in Sep 2008. (*JTFCapMed*)

5.2 Planning Process

The master plan update provides a development guide for NNMC through 2016. Much of this update reflects the BRAC – directed requirements but additional requirements were identified by the government offices in support of BRAC. The planning process was a multi step approach and involved participation by several groups throughout its development. Independent efforts were conducted simultaneous to the development of the master plan update all of which contributed to the process. These effects included the EIS and development of RFPs (Requests for Proposals) for early BRAC requirements.

The development of the Master Plan Update considers the current operational and physical conditions on campus and the identified projected requirements in terms of facilities and personnel. The following specific activities were part of the update process.

Campus and Facilities Assessment One of the first steps in the master plan was assessment of the campus and facilities to include physical properties and available reports and studies. A group of engineers and architects conducted a review of structures on campus in order to assign an assessment rating. This did not include a detailed evaluation, but was a visual overview of the facilities. This evaluation was used in conjunction with previous assessments available for review to identify facilities that may not be economical to maintain for long term.

Discussions with personnel, interviews with various departments, and evaluation of the physical conditions on campus identified issues to be addressed and further evaluated. Land use, building functions, landscape features, traffic patterns and other features within the campus were all considered.

Data Gathering and Analysis Information was gathered on anticipated population growth, estimated distribution of the population, and impacts. The infrastructure was evaluated through review of previous assessments, discussion with PWC, facilities personnel and local utility companies. Limited modeling and visual inspection was completed on the water and sanitary systems on NNMC. Archeology, environmental and traffic issues were assessed through various existing assessments and additional studies. Constraints and opportunities on the campus were identified and located. All of these areas were considered as applicable in the evaluation against future requirements.

Development and Alternatives The requirements were further defined to determine probable scale and building height and the resultant acreage required. These requirements were overlaid and weighed against the constraints and opportunities on NNMC to identify areas of potential growth within appropriate land use areas. Criteria were established to help evaluate alternative concept studies presented at multiple working group sessions. Based on discussion and feedback from the working sessions, the strongest options were included in the Draft EIS for scoping sessions and community input.

5.3 Goals and Objectives

There are several overriding planning goals to support the mission of NNMC that are foremost in the development of the master plan.

Create an environment that meets and enhances the needs of the Medical Center's Primary Missions.

Provide a land use master plan to accommodate anticipated growth, but flexible enough that as the scopes and specific projects are developed and change, the master plan is still viable.

Maintain and enhance the aspects of security, both for the overall installation and individual projects.

Recognize positive features in the built and natural environment and maintain and enhance those features.

Preserve the historic character and value of the campus and the natural resources.

Strive to cluster functions to facilitate a walkable campus.

Respect the surrounding neighbors by maintaining buffers on the perimeter as required.

5.4 Program Summary

The program for growth at NNMC including BRAC 2005 requirements follows. These requirements are at various stages in development. Some of these requirements will be constructed within the next few years to complete the realignment of WRAMC functions by September of 2011. Requirements that are not BRAC driven, may never be executed or may be modified as funding and priorities change. All of the projects are subject to change during the design process. The assumptions shown are for planning purposes only.

Table 5.4 Summary of Requirements

Summary of Requirements					
Facility	SF requirements	Assumed Stories	Structure Footprint	Parking Spaces Required	Comments
Medical Additions Outpatient	533,000	6	80500		Parking in proposed structures
Medical Additions Inpatient	157,000	4	36075		Parking in proposed structures
Medical Renovations	317,000	N/A			Various levels of renovation in Buildings 1-10
Center of Excellence for Traumatic Brain Injury	80,000	2	40000		Parking in proposed structures
Patient Parking Structure	341,000	7	47000	943	
Multi-Use Parking Structure	406,000	7	40500	1204	
Multi-Use Parking Structure	200,000	7	40500	565	
Medical Administrative Space	100,000				Distributed in new and renovated space
New BEQ/Dining	225,000	4	56250		Parking in proposed structures
SNCO units	17,200	2	8600		Will vary based on number provided. This assumes a maximum of 8
Lodge Expansion	120,000	6	20000		Will vary based on number of rooms in future expansion. Planning based on 200 rooms. Parking in proposed structures.
Three 21 room Fisher Houses	16,000	2	32000		Requirement will vary based on floor plan configuration for footprint and number of houses constructed. Planning based on four houses. Parking anticipated to be assigned in the south parking structure.
Applied Medical Research Facility	200,000	4	50000	300	Parking under facility similar to existing USUHS complex assumed. Must be designed to meet AT/FP.
USUHS Pres House	3,330	2	1665	2	
Child Care Drop Off Facility	8,000	1	8000	25	Limited parking associated with facility
Child Care Night Care Facility	4,000	1	4000	10	Limited parking associated with facility
Fitness Center	120,000	2	60000		Parking in proposed structures
NEX Expansion	150,000	2	75000	400	Associated parking planned in NEX structured parking
Transportation and Security Improvements					Includes Traffic Mitigation Projects: gate and road improvements, Security Bldg, and truck inspection. Locations vary.

5.5 Master Development Plan

NNMC is located on a rolling 243 acre campus in Bethesda, MD. The campus capital improvement plan from the 1990 Master Plan included several projects, some of which have been completed. (Figure 5-1 1990 Master Plan Capital Improvements) Some are still needed but the specific requirements have changed, while others are no longer valid. Completed or near completed projects include P-912, Bachelor Enlisted Officer Quarters (Bldg 61); P-923, Renovate BEQ (currently in execution); P-935, Child Development Center (Bldg 26); P-902 Surface Parking Area (G-Lot); P947, Addition to Navy Lodge; and SP-001, Construct Recreation/Ballfield area. This Master Plan update validates projects that still required and revises them based on current requirements identified by the government and the BRAC initiative.

Table 5.5 Bachelor Enlisted Quarters

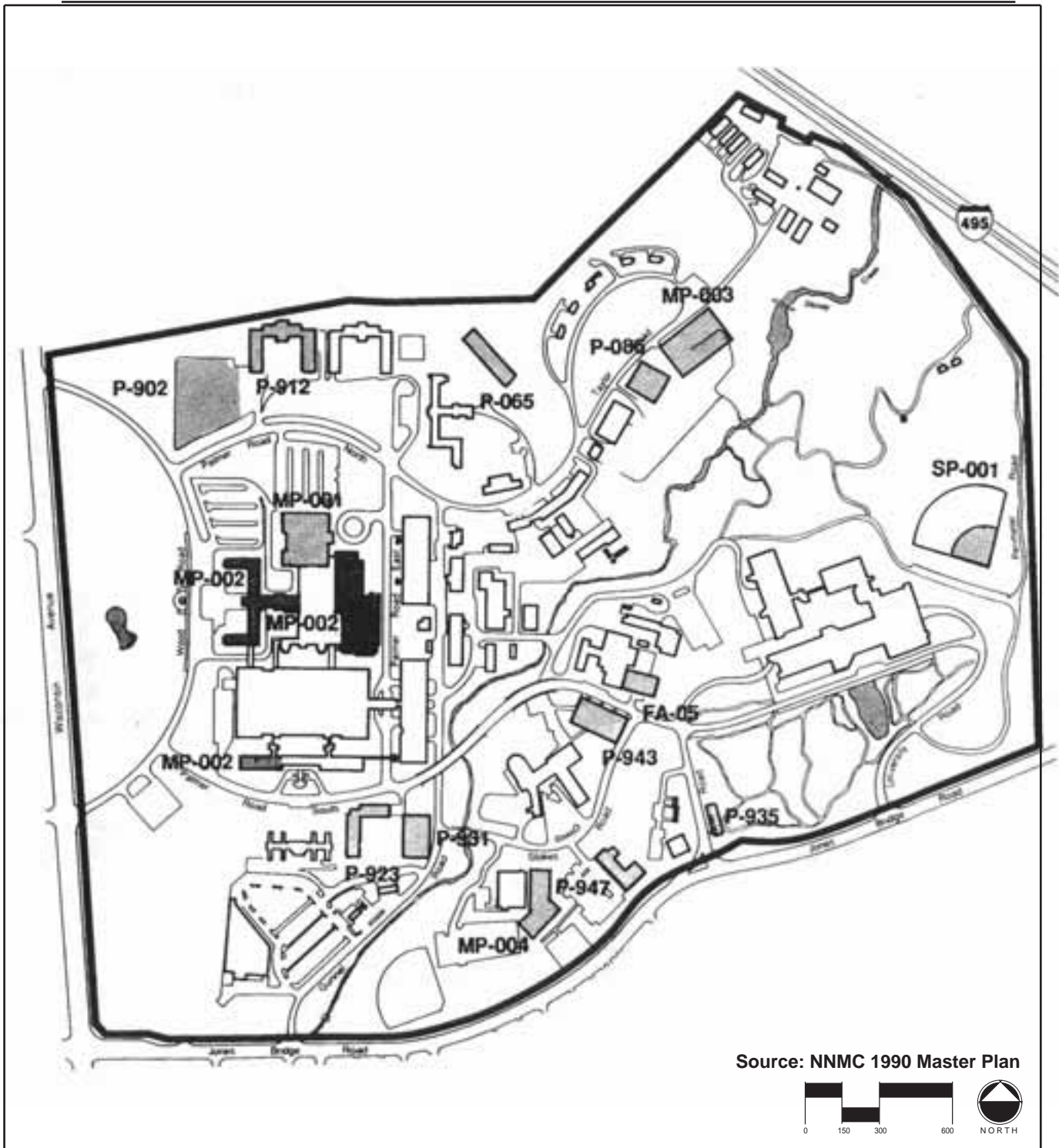
Requirement for additional BEQ										
Area available for Development		Acreage	Adjacent Land Use	Convenience for users	Pedestrian Traffic	Vehicular Traffic	Scale	Phasing	Total Score	Ranking
	Ballfield site	2	3	3	3	3	1	1	16	
	Bldg 23 site	2	3	1	1	3	2	3	15	2
	Bldg 17 entire site	1	3	2	2	3	2	3	16	
	NEX site	2	3	2	2	3	2	3	17	
	BEQ NW	1	1	2	2	1	1	1	9	1
	BEQ NE									
	USUHS west front	2	3	3	3	3	2	1	17	
	North medical	2	3	2	2	3	2	2	16	3
	north entry	3	3	3	3	2	3	1	18	
	USUHS east front	3	3	3	3	3	2	1	18	
	SNCO quarters	3	3	2	2	3	3	3	19	
	Behind Bldg 17	3	3	2	2	3	2	3	18	
	USUHS far east front	3	3	3	3	3	2	1	18	
	Bldg 53 and 141	2	3	3	3	3	2	3	19	

5.5.1 Medical Additions

In every scenario considered during the development of the master plan and the EIS, the growth of the BRAC medical requirements was identified within the medical core between North and South Palmer Roads and Wood and Brown Drives. From a functional standpoint, this is the most logical area for medical growth and the acreage is available. The site is already developed, the topography is relatively flat and utilities are immediately available. Both new construction and renovation of existing medical space are required to meet the BRAC requirements.

Currently, the majority of the clinical functions, primary, secondary, tertiary are located in Bldg 9 with some clinical functions and all inpatient care in Bldg 10. In some cases, the functions that create centers of excellence are inefficient because they are not collocated. The vision of the master plan was always to construct a new addition to the north of the core to house

MASTER PLAN
NATIONAL NAVAL MEDICAL CENTER
BETHESDA, MARYLAND



**NNMC
Master Plan
Update 2008
Bethesda Campus**

Project	Title
FA-05	Research Facility Addition
P-065	Bachelor Officers Quarters
P-012	Bachelor Enlisted Quarters
P-923	Renovate BEQ 50
P-931	Patient Parking Structure
P-935	Child Development Center
P-086	Blood Research Facility
P-902	Surface Parking Area

Project	Title
P-943	Construct Parking Structure
P-947	Replace Navy Lodge
MP-001	Medical Support Facility
MP-002	Renovate Hospital Facilities
MP-003	NSHS Facility
MP-004	Recreation Complex
SP-001	Construct Ballfield

Figure 5-1

**1990
Master Plan
Capital Improvements**

MASTER PLAN
NATIONAL NAVAL MEDICAL CENTER
BETHESDA, MARYLAND



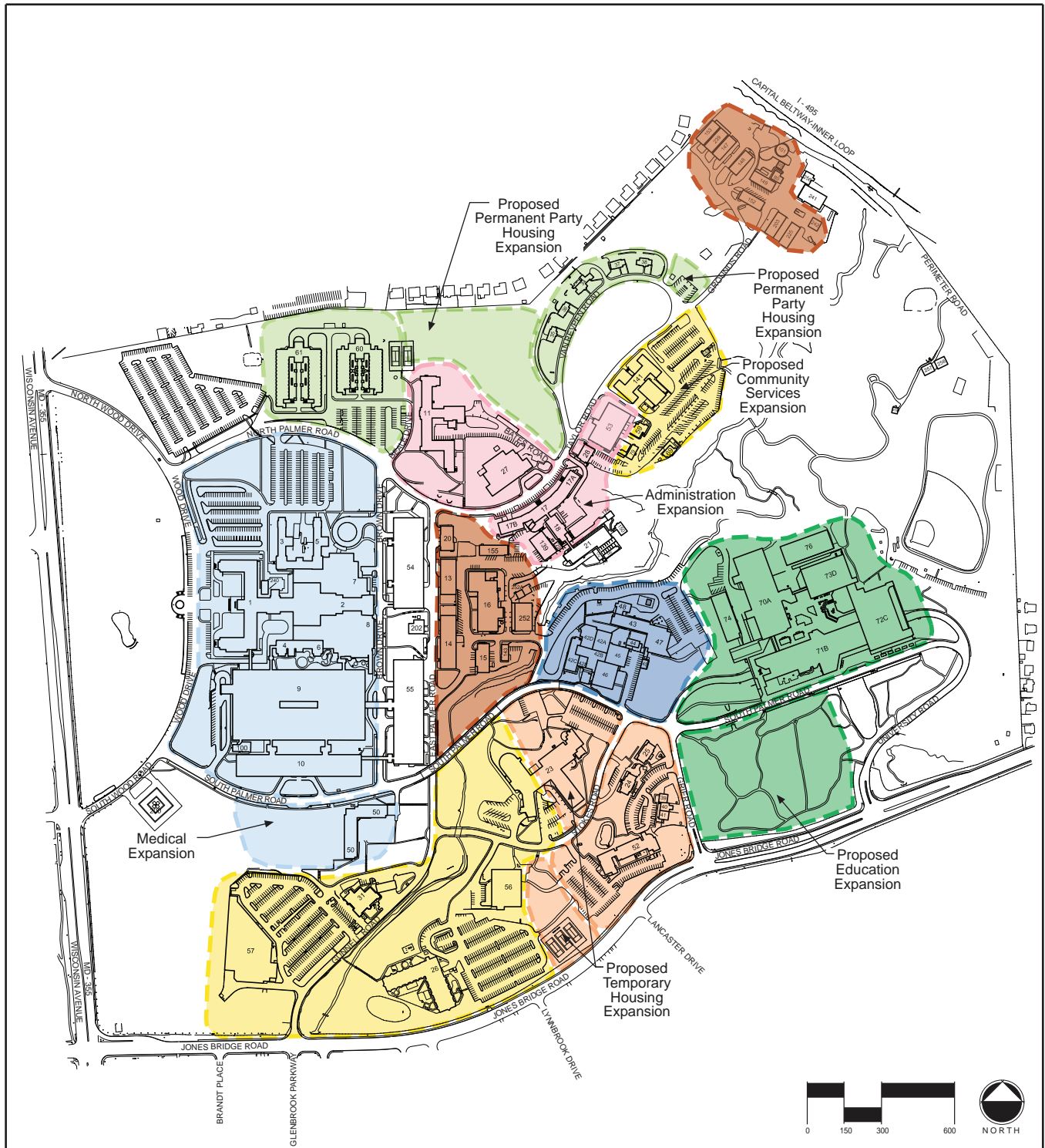
NNMC
Master Plan
Update 2008
Bethesda Campus

 AREA

Figure 5-2

**Areas of Development
Considered**

MASTER PLAN
NATIONAL NAVAL MEDICAL CENTER
BETHESDA, MARYLAND



NNMC
Master Plan
Update 2008
Bethesda Campus

- | | | | |
|--|-------------------------|--|-------------------|
| | MEDICAL | | EDUCATION |
| | ADMINISTRATION | | TEMPORARY HOUSING |
| | PERMANENT PARTY HOUSING | | MAINTENANCE |
| | COMMUNITY SERVICES | | |
| | RESEARCH | | |

Figure 5-3

Proposed
Land Use
Functional Zones

primary care and outpatient functions to some centers of excellence. Vacated areas in Bldg 9 and 10 would be renovated to meet the requirements of the expanded tertiary, diagnostic, ancillaries and inpatient care. The existing beds at NNMC are 224 and the total requirement is 345 beds.

The Ambulatory Care Pavilion (Building A) to the north will provide outpatient services to include the Cancer Center, Neurology, Physical Therapy, Children's Health, Internal Medicine and Family Practice spaces all clustered in one new building. It will have a drop off area and adjacent outpatient parking structure to facilitate patient flow and wayfinding.

The addition west of Building 9, the Inpatient Addition (Building B) will provide the required new ICU beds and additional diagnostic and treatment areas. The renovations within the existing buildings provide for the expansion required by the new program. Some of these areas are expanding in place and some are relocating to areas that can accommodate the overall expansion.

These revisions are still in line with the early master plan vision of having outpatient in the northern addition and ancillaries and inpatient in the southern addition. The north addition is currently proposed as six stories with a basement and approximately 533,000 GSF. The west addition to building 9 is proposed at 4 stories with a basement and approximately 157,000 GSF. Connectors will be provided between the new Ambulatory Care Pavilion and the existing Building 9 on the first floor and a tunnel is proposed to connect the Pavilion with Building 9 in the basement.

While the exact design of these additions and renovations will be developed during the design process, the RFP establishes the concept and parameters which the final solution must maintain. This concept has been submitted to both the National Capital Planning Commission (NCPC) and the State Historic Preservation Planning Office (SHPO). An artist's concept from NNMC publications follows. (NNMC)



5.5.2 Renovation

Following the medical additions, a large portion of the existing medical space will need to be renovated to meet the program requirements. Approximately 317,000 GSF of existing space is proposed for renovation in portions of buildings 1, 2, 7, 8, 9 and 10.

In general, the west end of the basement of Building 9 is anticipated to be renovated for Pathology to include Anatomic, Clinical and Infectious Disease Labs.

The first floors of several building are anticipated to receive renovation to accommodate a variety of functions: Family Advocacy in Building 3; Infectious Disease in Building 7; reduction of the Library and expansion of Ophthalmology in Building 8; and Pulmonary, Transplant, Nephrology, Neurology Surgery, General Surgery, and Imaging in Building 9. Imaging will extend to the new addition west of Building 9 on this level.

The second floors are also to receive some renovation in multiple buildings: Dental Readiness in Building 2; Women's Clinics, Sleep Lab, Plastic Surgery, Cardiology, Cardio Thoracic, Cardio Pulmonary, and Vascular Surgery in Building 9. Cardiology will expand into the addition west of Building 9 on the second floor.

On the third level the renovations include areas in buildings 7, 8, 9 and 10. Portions of Building 7 are proposed to be renovated for the Naval Criminal Investigative Services; Building 8 will provide space for the Health Physics; Building 9 renovation will include the Surgical Suite, PACU, Women's Invitro, Pain Clinic and Ambulatory Surgery; and portions of Building 10 will be renovated for Pediatric Unit, Pediatric Sedation / Procedures, Med / Surg beds, and Inpatient Physical Therapy. Expansion of Critical Care beds will be in the addition adjacent to the Surgical Suite.

The fourth floor renovations are almost entirely in Building 10 to improve Med / Surg inpatient units.

No renovations are anticipated on levels 5 and 6. Level 7 of Building 10 will be renovated to better accommodate the Behavior Health inpatient unit and some Psychological preventive and consultative services.

In addition to the future renovations planned as part of the BRAC project requirements, there are operations and maintenance projects currently under design and construction for medical care facilities. Projects to upgrade facilities include renovation of the main Ors in Building 9.

Buildings 3 and 5 are being renovated to accommodate Administrative elements of the WTU and Building 17 is also being renovated to accommodate administrative functions.

5.5.3 National Intrepid Center of Excellence for Traumatic Brain Injury

A requirement for a 50,000-80,000 GSF National Intrepid Center of Excellence (NICoE) for Traumatic Brain Injury has been identified for construction at NNMC. This facility will provide advanced diagnostics and short-term clinical rehabilitative care in addition to patient and family training. Family member participation and education is important for traumatic brain injuries, post traumatic stress, and psychological patients.

As a patient care activity, it is important that this function be located close to the medical core of the campus. Early on in the master planning process, the location of Building 12 was seen as an opportunity for expansion of this medical core. When the requirement for the NICoE was identified, this was the logical location for this function. Since Building 12 is considered a contributing historical facility and is within the historical district on NNMC, Section 106 consultation process applied. The Navy conducted an independent evaluation of Building 12 and determined that reuse of the facility is not practical.

Building 12 has been demolished for this project and construction is anticipated to begin in the summer of 2008. The design will comply with restrictions of the nearby helipad as outlined in UFC 3-260-01, November 2002 (and changes May 2006), United Facilities Criteria, Airfield and Heliport Planning and Design.

5.5.4 Parking Structures

With the increase in staff and patient loads for expanded services with the WRAMC realignment, parking is a concern. There are two existing parking structures to the east of the medical core across Brown Drive but within the Wood Drive and Palmer Road area. Parking Structure 55 is used for patient parking and Parking Structure 54 is used for staff parking. Parking Structure 55 has two connecting bridges to Buildings 9 and 10 for patient access. The early proposals discussed in master plan working sessions recommended the medical core parking should continue to be built on the perimeter of the medical core buildings to reserve the central core for future medical requirements. From the beginning, it was determined that a large structure to accommodate the full 2500 space additional requirement would be difficult to accommodate, out of scale with the campus structures, and would not conveniently serve the needs of users. Instead, the master plan recommended decentralization of the parking requirement with two approximately equal structures on either end of the medical core. This was intended to provide dispersed parking to serve other activities to the north and south as well. Initially, the site behind Building 17 and the Building 23 site were considered for this function.

As with the medical additions, the Request for Proposal followed this early concept with some modifications. The current proposals developed through the RFP process is for three parking structures. One is to be located east of

the new Ambulatory Care Pavilion (Bldg A) at the north end of the medical core, the second is to be located to the south of the medical core on the western portion of the Building 23 site, and the third is proposed in the vicinity of Building 141. The first two structures are anticipated to be approximately 7 stories. The topography in the area of the proposed northern parking structure is relatively flat and the structure should not exceed the height of the adjacent new outpatient facility. Access to the north parking structure will be off a new drop off drive from Palmer Road North as well as Wood Drive and will accommodate some of the lost parking from existing Lots A and L. This new patient parking structure will accommodate 943 spaces.

The proposed Multi-use (south) parking structure can be designed to minimize the impact of the structures scale by using the significant topography in the area to minimize the perceived height. Access to the Multi-Use structure is anticipated from both Palmer Road South and Stokes Road, making this parking structure convenient for those entering the campus from the NEX gate as well. This parking structure will be for staff, the Fisher Houses, the NICoE, the Navy Lodge expansion and medical resident reserved parking. It will accommodate 1204 spaces. Due to its' central location, accessibility and the topography of the area it is recommended this structure be designed for future expansion. It is recommended that consideration be given to a three bay parking garage to increase efficiency over the currently proposed two bay structure. A third bay to increase the width would allow a lower structure to minimize the massing in the area. To allow flexibility for future growth, a structure to accommodate vertical expansion should also be considered.

A third Multi-Use parking structure is included for development purposes. The proposed location of this third structure is in the north central portion of the installation and would serve the admin functions, new BEQ, and Fitness Center in this area. The current plan for locating this structure is to place it north of the new Fitness Center and to site the Fitness Center in place of the demolished Building 141. This location allows for a stronger connection between the Fitness Center and Stoney Creek and other outdoor recreation facilities.

5.5.5 Medical Administrative

In addition to medical functions, there is a requirement for expansion of medical administrative functions. The vision of the master plan is to reserve the area within the core for medical patient functions or those functions that are justified due to convenience or efficiency to staff and/or patients. Other administrative functions should be relocated out of the core area to facilitate improved efficiencies of remaining functions. New or expanded non-patient administrative functions should be located on the periphery of the core. Based on the assessments of the facilities, there are several buildings that are not currently fully utilized. Non-medical administrative functions can infill the space available in building 11.

Additionally, Building 17 is currently vacant and offers an opportunity for several administrative functions. Though the assessment of Bldg 17 identified it as poor condition, it is a concrete structure with adequate floor to floor height that could be occupied for non-medical administrative functions after a total renovation. Additionally, since Building 17 has historic significance as a contributing historical structure as part of NNMC Historic District, it is highly desirable to maintain it to preserve the historic character and value of the campus - one of the principle goals of the Master Plan.

The master plan recommended the underutilized buildings be used as swing space that will certainly be necessary during the renovation of the medical core, that Building 17 be fully renovated for non-medical admin space expansion. It is important that the renovation of Building 17 maintain its historical significance.

It has been decided to maintain both Buildings 11 and 17. A project to renovate Building 11 is already underway as a base project and Building 17 is planned for renovation as well.

Even with the renovation of these buildings, there is still a valid need for additional administrative space. The current identified requirement is for approximately 100,000 GSF. Consideration will be given to using Buildings 18 and 21 and renovating them for administrative functions based on their designation as historically contributing facilities, however, based on their current condition and the assessment of the master plan team, it is highly unlikely they can be used. The master plan recommends new construction to meet the administrative requirement on the site behind Building 17 and the site further northeast.

5.5.6 Bachelor Enlisted Quarters (BEQ)

At the time of inventory, there were approximately 404 beds for permanent party on NNMC. E-3 and below are housed in the barracks, except for Resident Advisors, who are higher ranks. Building 60 has 84 rooms with private baths for permanent party females. Only 8 of the rooms were single occupants and the rest of the permanent party rooms were double occupancy. The remaining 79 rooms are designated for visiting quarters. Building 61 has 216 rooms used for male permanent party. Eight of these rooms have private baths and 208 have shared baths. Portions of Building 50 are used for permanent party. Projects to modify Buildings 50, 60 and 61 for ADA compliance in many of the rooms have recently been completed. This will provide more flexibility for use of the rooms as either permanent party or medical hold patient requirements.

Expansion of the BEQs is required to accommodate the additional staff projected. The current estimate is for an additional approximately 300 rooms. This figure may vary as the requirement is further reviewed. It is anticipated that this will include rooms for the Warrior Transition Unit. The current Navy standards developed through the Homeport Ashore Program for permanent party is a 1+1 Apartment concept. This means two sleeping rooms, a shared bath and a shared kitchen.

A requirement of approximately 225,000 GSF has been identified. This would include 307 two-bedroom suites comprising approximately 204,000 GSF, and a dining facility of approximately 21,000 GSF to serve both the WTU functions and permanent party. Parking for the additional BEQ requirement is anticipated to be included in the centralized parking structures with limited additional parking at the BEQ site.

Given the need to maintain Building 11 for administrative requirements for a longer term and the current project to renovate Building 11, the new BEQ is proposed to be located north of Building 11. Access to the new BEQ is recommended via Beale and Bates Roads with the surface parking in front of the new facility. Consideration should be given to terracing the structure to follow the natural topography and minimize the scale to the surrounding area. Consideration should also be given during the design to incorporating green roofs or gardens in the terraced design process to minimize the impact visually and in terms of impermeability of the new construction.

5.5.7 Family Quarters

There are currently 8 family housing units on NNMC. There are 5 Flag Officer Quarters and 3 Senior NCO quarters. There is space to the north for expansion of family housing units on Van Reypen Road if required.

Starting in Jan 2009, all the family housing on campus will be privatized. Part of the contract will be to demolish the three Senior NCO quarters, Buildings 39, 40 and 41 due to their poor conditions. A potential requirement for 8 Senior NCO quarters has been identified to replace the current 3 but it is not known at this time if they will be replaced as part of the new privatization contract. The current location of these SNCO facilities, Buildings 39, 40, and 41 are adjacent to the Navy Lodge and Fisher Houses in an area that is predominantly used for transient housing, in an incompatible land use area. The Master Plan recommends if they are replaced, the construction of these new eight SNCO quarters to the north of the campus in the family housing area close to the flag housing but in a separate “neighborhood”. Each of these quarters is approximately 2,300 SF with 2 parking spaces per housing unit. AT/FP setbacks are not applicable since criteria does not apply to family housing buildings with fewer than 12 units.

5.5.8 Temporary Quarters

There is a great need for temporary quarters on NNMC and with the realignment of WRAMC and NNMC the need will increase based on the Warrior Transition Unit (WTU) requirements. Particularly important is space for visiting family members of wounded and rooms for patients that have been discharged but require significant follow-up treatment. A total of 350 rooms are estimated to be required for the WTU functions.

The Navy Lodge has 106 rooms available for visiting personnel. It currently has a 95-98% occupancy rate. Current users of the Lodge include patients from outside the area with appointments, families of the inpatient

recovering patients that no longer are inpatients but have outpatient follow-up requirements.

Building 60 has 79 rooms (78 rooms and 1 suite) for visiting personnel which are handled by billeting and not the Navy Lodge. Building 50, Mercy Hall, was recently renovated in support of the WTU and provides 99 rooms. The two existing Fisher Houses have a total of 15 rooms for visiting families. The Lodge would like to expand based on business case analysis after completion of BRAC work.

The site just west of the existing lodge is recommended for any future lodge expansion in the Master Plan and can accommodate an expansion of up to 200 rooms. Based on comparison of existing facilities, approximately 400 GSF is required per room for a total scope of 80,000. This translates to a 6 story facility addition located west of the current lodge on part of H Lot with a footprint of approximately 15,000 GSF. Access for the addition would be from Stokes Road with expansion and reconfiguration of H and I lots and a probably elimination of the existing tennis courts at that location. Parking for the lodge could be accommodated in the structured parking on the building 23 site. The site east of the lodge could also be used for expansion making the current lobby more central to both the existing lodge and the future expansion but the AT/FP setbacks from Grier Road would limit this expansion or require Grier Road to be modified.

5.5.9 Fisher Houses

There are currently two Fisher Houses on NNMC. Buildings 24 and 25 have 7 and 8 rooms respectively. Additional 21 room Fisher Houses have been proposed for NNMC. The footprint of the 21 room Fisher House is 163' in length and 81' wide at the center (*Designtech Associates*) not including AT/FP setbacks. The Fisher Foundation has indicated that they would like to provide three additional 21 room houses at NNMC. Two are anticipated to be constructed through the Foundation in the relatively near term with a third or more in the future. It has also been determined that the Fisher Houses can be built with construction that can limit the setbacks to 50'. Ideally these new houses would be in the same area as the existing houses but the land is very constrained.

It is recommended that the new houses be clustered in the area west of the existing two Fisher Houses across Brown Drive on the site of Building 23. Consideration should be given to integrating these residences with the proposed site to allow for a clustered layout while meeting setback requirements and maximizing outdoor spaces. The houses could potentially be constructed on or in the vicinity of the K lot since the new staff parking structure on the west end of Building 23 will provide increased parking in this area. Assigned parking for the Fisher Houses could also be located in the adjacent structural parking at the current Building 23 site.



5.5.10 USUHS

The Uniformed Services University (USU) or Uniformed Services University of Health Sciences (USUHS) is housed primarily in the Building 70s complex which consists of over 1,000,000 GSF. This area consists of four buildings and includes academic, administrative and research functions. Some USUHS functions are dispersed in additional buildings or portions of buildings to include Building 1, 9, 28, 53, 59, 79, and 141. An FY06 MILCON to build a new Graduate School of Nursing (GSN) will add 60,000 GSF to the Buildings 70 complex when complete in 2008. The facility provides academic program space for the Graduate School of Nursing and adds instructional space and classrooms for small group and seminar-style training at USUHS. The facility will also provide additional underground parking to accommodate GSN staff. Until it is complete, the functions have been housed in leased space in Silver Spring. There is also a requirement for additional laboratory space which the USUHS facilities department is addressing through renovation of existing space.

Long term, there is a desire for an Applied Medical Research Facility. It is envisioned that this facility would not be exclusively for USUHS. The master plan identifies an area south of the USUHS campus that would be convenient for the University or any future requirements of the new WRNMMC. Since this project is not currently supported in a program, a PPV project may be considered at some point in the future. The location off Jones Bridge Road would make it desirable for privatization with occupancy by USUHS, WRNMMC, NIH or a variety of uses. Consideration should be given to conference facilities within this facility. While a firm scope has not been determined, the master plan has identified an area for long term planning. A proposed 5 story structure of 200,000 GSF with structured parking below the occupied floors, similar to the current campus is envisioned. If provided, special provisions for parking below the occupied floors would have to be

provided to meet AT/FP criteria. The topography of the area in front of the UHUS campus would allow for parking under the structure to be below street level but have access to daylight. The topography also can be an advantage to keeping the above grade occupied floors at a compatible scale to the surrounding area by minimizing the height visible from key views.

5.5.11 USUHS President's Quarters

In August 2005 USUHS requested quarters be made available at Bethesda for the new University President. At that time, all the quarters on Bethesda were occupied and, as a flag officer equivalent, housing the USUHS president would have resulted in displacement of a Navy Flag officer lodger. In general, there is a shortage of Flag officer quarters in the entire Washington D.C. area. A formal response to the request, dated 20 Sep 2005 from the Under Secretary of the Navy, was for USUHS to work with the Office of the Under Secretary of Defense (Comptroller) to try and arrange for Family Housing Appropriation to construct such quarters. The recommendation also emphasized that the siting of a new residence must be coordinated with the BRAC requirements identified at that time. Additional discussions indicated that the construction may not be through Family Housing Appropriations, but rather the University Foundation. While not currently identified as a pressing requirement for USUHS because the President has quarters off campus, and regardless of the ultimate funding source, there may be a long term desire to have quarters available for the USUHS President on Bethesda. In an effort to direct this potential future growth, the master plan recommends an area adjacent to the current Flag Officer Quarters to the north of the campus. Parking for private vehicles would be included in these quarters.

5.5.12 MWR Facilities

There are several categories of MWR Facilities on NNMC. Category A facilities are considered mission essential and include the Fitness Center and Liberty Facilities. Category B facilities are community service type facilities and include the Child Development Center (CDC) and Information Ticket and Tours (ITT). The funding for this category is supplemented with a goal of 50/50. Category C facilities are self sufficient and include the bowling alley and MWR food service outlets. For purposes of MWR programming, NNMC is considered a medium command and will remain medium with the realignment of WRAMC functions and increased staffing.

Child Development Center

The existing Child Development Center (CDC), Building 26, is adequate for the current need. There are 240 slots available for child care, which is a reduction from the previous slots of 290 due to changes in the infant count and child/provider ratios. The current limiting factor is not the physical space but the staff available. There is also an existing Child Care facility at Forrest Glenn which will remain operational. No additional need for daytime care is anticipated with both facilities remaining open.

There is a potential requirement, however, of two additional child care facilities for different functions. A requirement has been identified for an 8,000 GSF drop-off child care center for hourly requirements. This would be available for beneficiaries who have an appointment for themselves and can drop off their child(ren) to be cared for while they attend their appointment. The second type of child care facility is for 24 hour care. A 4,000 GSF facility requirement has been identified for this purpose. The functional intent of this facility is for staff who are shift workers and need child care in the evening/night hours.

From a functional and convenience standpoint for the patients, the ideal location for the drop off child care center would be located within the medical core complex so the children could be dropped off and picked up in the same area as their appointment. However, the current BRAC scope does not have space allocated for this function. It may be reasonable to allocate a couple of rooms for this function within the clinical space on a trial period, but the split staffing of childcare workers for a drop-in service may be problematic. From a staffing perspective, it would seem to make operational sense to offer the drop-in service at the existing CDC so staff can be more efficient and playgrounds can be available for both groups. If an addition is required or a new facility can be justified, there is space adjacent to the current CDC for a more efficient operation.

While still a new concept, the idea for the 24 hour care facility is to be a homelike facility with beds and provisions for night time care. In preliminary discussions, the idea of providing this service by changing the operations of the existing CDC after normal daytime hours to provide temporary sleeping areas was not favorable. If a facility solution is required and the existing space cannot be used with operational changes, then a site east of Building 26 has been identified for this purpose.

Fitness Facilities

The main Fitness Center is located in Building 23. It includes a 25 yard 6-lane indoor swimming pool, saunas, cardio exercise center, weight room for strength conditioning, locker rooms, and full gymnasium. The gymnasium and pool have an average of 12,000 patrons per month. There is also a small fitness room in Building 9, and a 2nd floor fitness room in Building 60.

In addition to the indoor facilities, there are four tennis courts, basketball court, softball field, running track and two picnic pavilions throughout the campus. There are established leagues organized by MWR and the facilities are all well used.

The location of the current fitness center (Building 23) is not recommended to retain long term. The west end of the building was used as an Officers Club, but has been closed for a number of years and is empty and deteriorating. There is mold throughout the structure and it is not economical to renovate it. The current Fitness Center is located in the east end of the building. It is not ADA compliant and it is beyond the point where it can be economically maintained.

A 120,000 SF scope is supported by an interactive worksheet and UFC 4-740-06, Design: Fitness Facilities, August 2005, using a medium size installation requirement basis. (Killion, B). The project would include a lobby, admin support, basketball, racquetball and volleyball, indoor track, cardio and weight training, exercise space, an indoor 8 lane pool, locker rooms and associated support.

The master plan recommends the new facility be constructed on the site of Building 141, which is to be demolished. This places the fitness center at the northern end of the campus within close proximity to permanent party but not far from other areas of the campus to include USUHS through established walking trails. It provides a strong tie to the Stoney Creek natural areas providing a good opportunity to link the outdoor fitness trails, recreation pavilions and sports fields to the new facility.

In addition to the proposed fitness center replacement, the active duty population projected at Bethesda warrants additional outside fitness venues. Additional ball fields are recommended based on the standards of UFC 4-740-06. As a medium installation, Bethesda is authorized 2 regulation size softball fields and 2 oversized fields to accommodate soccer and rugby. Although there is only one softball field now, in discussions with MWR personnel, they recognize NNMC has limited space and believe that a second field with removable fencing to allow soccer and/or rugby would meet the overall requirements. Lighting the fields would be of benefit to extend the playing opportunities. Any additional lighting of the fields should be designed to minimize the light pollution to adjacent community parks and neighborhoods. (Killion, B) There is space adjacent to the existing fields for further development.

5.5.13 Navy Exchange (NEX)

Building 57 is the current Navy Exchange and is approximately 48,000 GSF. The Exchange Service would like to build a new facility that would approximately triple the size of the existing store to 150,000 GSF and associated structured parking. The exchange generates approximately \$20M in sales annually. By NEX criteria, if a store generates more than \$500/SF, it is considered undersized. The NNMC NEX generates over \$800/SF and up to \$1000/SF in some departments, so their analysis strongly supports expansion.

Any expansion of the exchange should accommodate NEX activities currently located in other buildings to include the Package Store in Building 23, since this will be demolished in the future. A new refill pharmacy is recommended for consideration at the expanded NEX, with removal of modular Building 142 (which houses the existing drive through refill pharmacy). The current staff for the exchange is approximately 160 and is estimated to grow to approximately 240 with a 150,000 GSF store.

Several sites were evaluated to include expansion of NEX in place or replacement at a new site. Some of the sites would have required extension

of campus utilities or replacement of existing facilities, neither of which the Exchange is able to fund due to policies. The recommended location is an expansion at the current location. The design must be carefully coordinated with security and helipad operations to ensure compliance with the airspace criteria. No waivers will be granted for violations of criteria. Previous NEX design studies have shown that this location can support close to the 150,000 SF facility desired while meeting the airspace criteria. Preliminary discussions and meetings on site with a representative from the Washington Field Office (WFO) of the United States Secret Service for the helipad presidential operations did not reveal any problem with this proposed expansion. (*Kirtpatrick, J*) It is strongly recommended that structured parking be included in the design to minimize the footprint required though that was not the proposal in the previous studies.

Alternative sites were considered for a new NEX which would allow construction without impacting the current facility operations, but this option was not supported. With so many requirements for space and the mission priority clearly focused on medical care, dedicating land for a new NEX is not recommended.

5.5.14 Fire/Security Complex

Currently security is located in valuable real estate in Building 7, part of the medical core. While it is important to be close to the center of the campus, it is not necessary for security to be located in the medical core. This space could be used more effectively for patient care and direct patient contact functions.

The fire station is in Building 20 just east of the medical core. The facility was built in 1944 and is a contributing structure due to their construction type and are located within the NNMC Historic District. The facility is no longer economical to renovate or maintain and cannot accommodate the vehicles sizes and equipment required for a modern fire department.

It is recommended that a new facility be constructed at the location of Building 155; an old vehicle facility that is no longer required. This location is central to the campus for response to security and fire issues and would allow adequate setback from Brown Drive to accommodate the larger vehicles without impacting traffic.

5.5.15 Transportation and Security Improvements

This section presents the key elements of a master transportation plan for the NNMC campus. The primary purpose of the transportation plan is to support and inform the planned campus development anticipated by this Master Plan, including the land use changes constituting the BRAC Action. The transportation plan also provides opportunities and makes recommendations to strengthen the existing land use - transportation relationships needed to accommodate the planned campus development without adverse access, circulation and safety impacts to all users of

transportation facilities and services within the campus and in its vicinity. The transportation plan was therefore developed based on the data and analyses discussed earlier in Section 4 of this Master Plan document. The transportation plan development was also based on the following planning principles:

- Provide an efficient, effective and safe transportation network that enhances access and circulation for all modes (passenger vehicle, pedestrian, bicyclist, shuttle bus, truck) and enhances the quality of life on the campus.
- Provide pedestrians, bicyclists and transit priority over passenger vehicles.
- Safely and efficiently satisfy the parking needs of patients, visitors, employees, and lodgers in keeping with the goals established by the NNMC Transportation Management Plan.
- Consolidate parking areas to increase efficiency and accessibility, and to reclaim green space.
- Effectively integrate the campus transportation system with public facilities and services, including the Medical Center Metrorail Station and pedestrian and bicyclist facilities.

The key transportation plan elements and recommended changes are presented below.

GATE ACCESS IMPROVEMENTS

University Road Access

- Provide one-way inbound access during all times of the day, and provide other improvements needed to accommodate ingress movements by commercial vehicles, including large trucks, in accordance with current gate improvement plans.

Rationale: University Road currently serves one-way inbound traffic between 5:00 am to 8:30 am from Monday to Friday, and is closed during other times. This road would provide direct access to the planned commercial vehicle inspection facility.

Grier Road Access

- Provide two-way directional movements during all times of the day, and provide accommodating roadway improvements in accordance with current gate improvement plans.

Widen Grier Road and provide pavement markings to delineate a separate right-turn lane and a left-turn lane for outbound traffic movements, and a single lane for inbound movements.

Rationale: This signalized access is restricted to outbound traffic movements between 3:00 pm to 6:00 pm from Monday to Friday, and used as a truck inspection facility at other times of the day. The improvements could be accommodated without adverse impacts, and would enhance site trip distribution and the operations of the other campus gates.

North Wood Road Access

- Conduct a full intersection study including a signal warrant analysis for this location, and implement identified geometric and/or signalization improvements.
- Widen the roadway cross-section to increase the number of lanes from two to three.
- Provide two inbound lanes and one outbound lane in the morning peak hour, and two outbound lanes and one inbound lane in the evening peak hour.

Rationale: This access location is unsignalized. It experiences extensive queuing by vehicles waiting to turn left into the campus during the morning peak period, and by vehicles waiting to exit onto Rockville Pike during the afternoon peak period.

For all gates, a safety and security analysis is being conducted by DOD to improve security, safety, improve queuing on-site and reduce queuing off-site, and reduce damage to gates and guard houses.

ROADWAY CAPACITY IMPROVEMENTS

- Restrict Wood Road to emergency and transit vehicles between North Palmer Road and South Palmer Roads.

Rationale: The North Palmer Road and South Palmer Road intersections with Wood Road currently operate with capacity constraints during the morning and afternoon peak periods. The closure of this section of Wood Road to passenger vehicles would improve the operation of those intersections without creating inefficient circulation impacts.

- Provide the following improvements at the Robert Brown Road at North Palmer Road intersection.
- Widen the northbound approach of the intersection and provide a separate left-turn lane and a shared through/right turn lane.

Rationale: These improvements are required to mitigate projected capacity deficiencies.

- Connect Lot N to the outbound driveway from the USUHS Parking Garage.

Rationale: This will improve circulation of vehicles exiting out of Lot N.

- Enhance vehicular circulation along the existing roadway connection between Stone Lake Road north of South Palmer Road Bridge to Stokes Road to form an ‘L’ shape. In the future, Lot R and K may be consolidated after the Fishers Houses are built on this site. However since this enhanced roadway connection will pass through Lot K to join on to Stokes Road, a few parking spaces might be lost.

Rationale: This connection will improve circulation of vehicles within campus and provide a more favorable distribution of traffic exiting onto Jones Bridge Road via the Grier Road and Gunnell Road Gates.

All the roadway circulation recommendations are shown in Figure 5-4 Proposed Circulation.

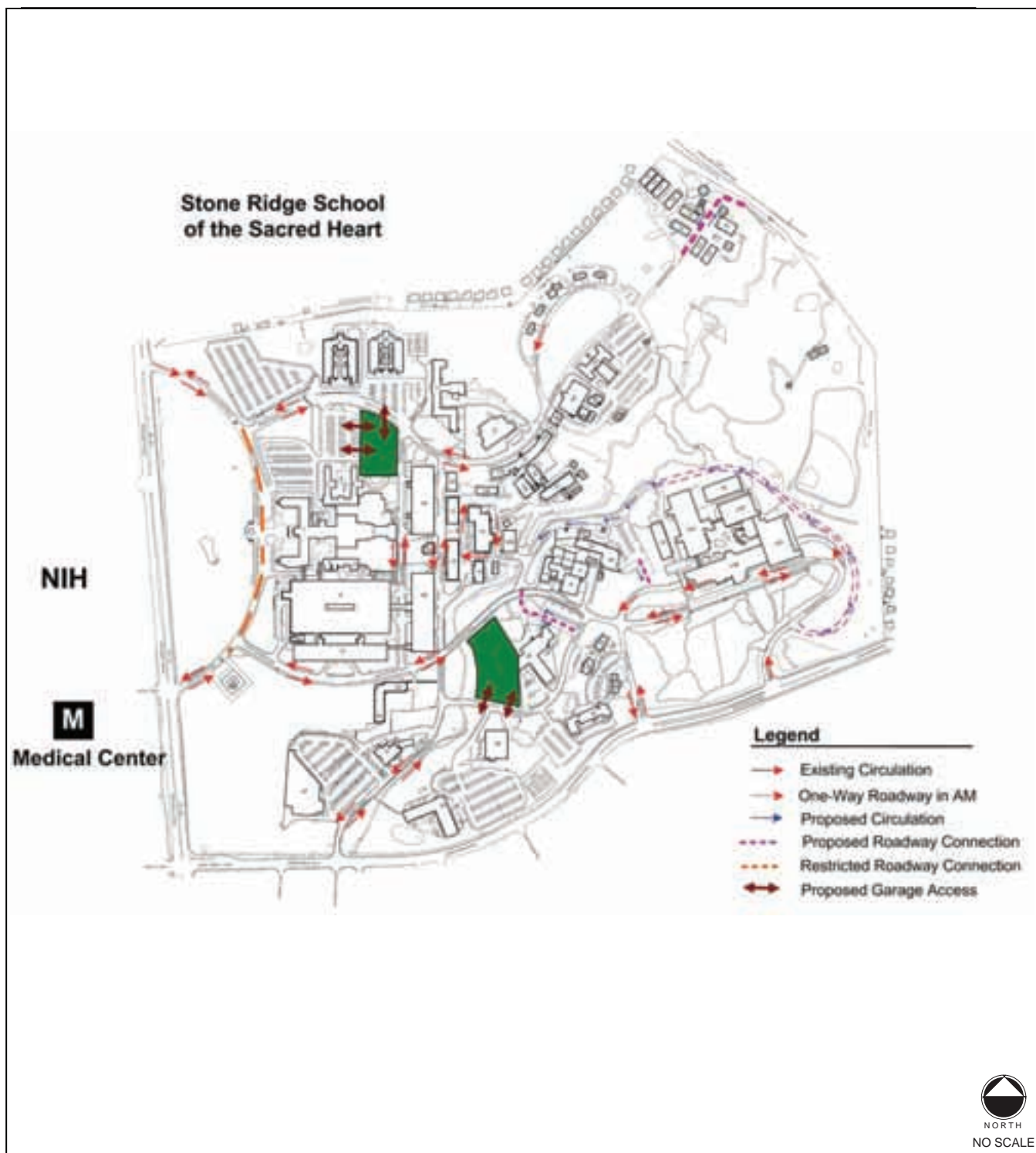
TRUCK INSPECTION FACILITY AND CIRCULATION IMPROVEMENTS

The current designated truck inspection facility is located at the Grier Road/ Navy Lodge Entrance. As a short-term improvement to this truck facility, it is recommended that:

- Grier Road should be widened to provide two 12-foot inbound lanes. The inspection areas should be located sufficiently inside of the gate to prevent spill-over of queues onto Jones Bridge Road.
- In addition to the outbound lanes there should be provision for a turn around lane, that can be used by trucks rejected after inspection. The additional area needed to facilitate efficient truck turn around movements can be obtained by utilizing the open space remaining after the planned demolition of the currently unused SNCO senior housing quarters located along Grier Road.

In the long term, a new truck inspection facility would be located along the east side of University Road Gate just north of Jones Bridge Road. The following recommendations pertain to truck access and circulation related to this facility:

- Undertake an engineering design study for the planned commercial vehicle inspection center, to determine the improvements required to make the facility operate efficiently and safely without any adverse traffic impacts within the campus and along Jones Bridge Road;
- Improve Stone Lake Road and complete the eastern perimeter road loop to accommodate trucks and other vehicles before the planned truck inspection facility becomes operational; and
- In the event of Stone Lake Road being permanently closed to traffic as is the case today, a new roadway connection is recommended between Perimeter Road and E Rixey Road. This roadway connection would run parallel to and north of Stone Lake Road.



NNMC
Master Plan
Update 2008
Bethesda Campus

Figure 5-4

Proposed Circulation

- Designate the Gunnell Road/Navy Exchange Gate as the truck exit for all the trucks. This gate will provide most direct and shortest exit route for majority of trucks serving the campus. Gate improvements including the expansion of Gunnell Road to provide two inbound and two outbound lanes with sufficient widths for truck traffic would be necessary.
- Eliminate on-street parking along East Rixey Road near its intersection with East Palmer Road, restrict Stone Lake Road to one-way westbound and eliminate or reduce on-street parking along Stone Lake Road.

Rationale: These improvements will enhance the efficiency and safety of truck access and circulation within campus. The recommended truck circulation improvements are illustrated in Figure 5-5 Proposed Truck Access.

PEDESTRIAN AND BICYCLE IMPROVEMENTS

- Provide sidewalks along Grier Road south of South Palmer Road and South Palmer Road east of Grier Road.
- Support the improvement of local area regional pedestrian and bicyclist facilities by public agencies.

Rationale: These improvements will enhance the use of these alternative modes by commuters and reduce vehicular circulation and parking demand within the campus, in keeping with stated TMP goals.

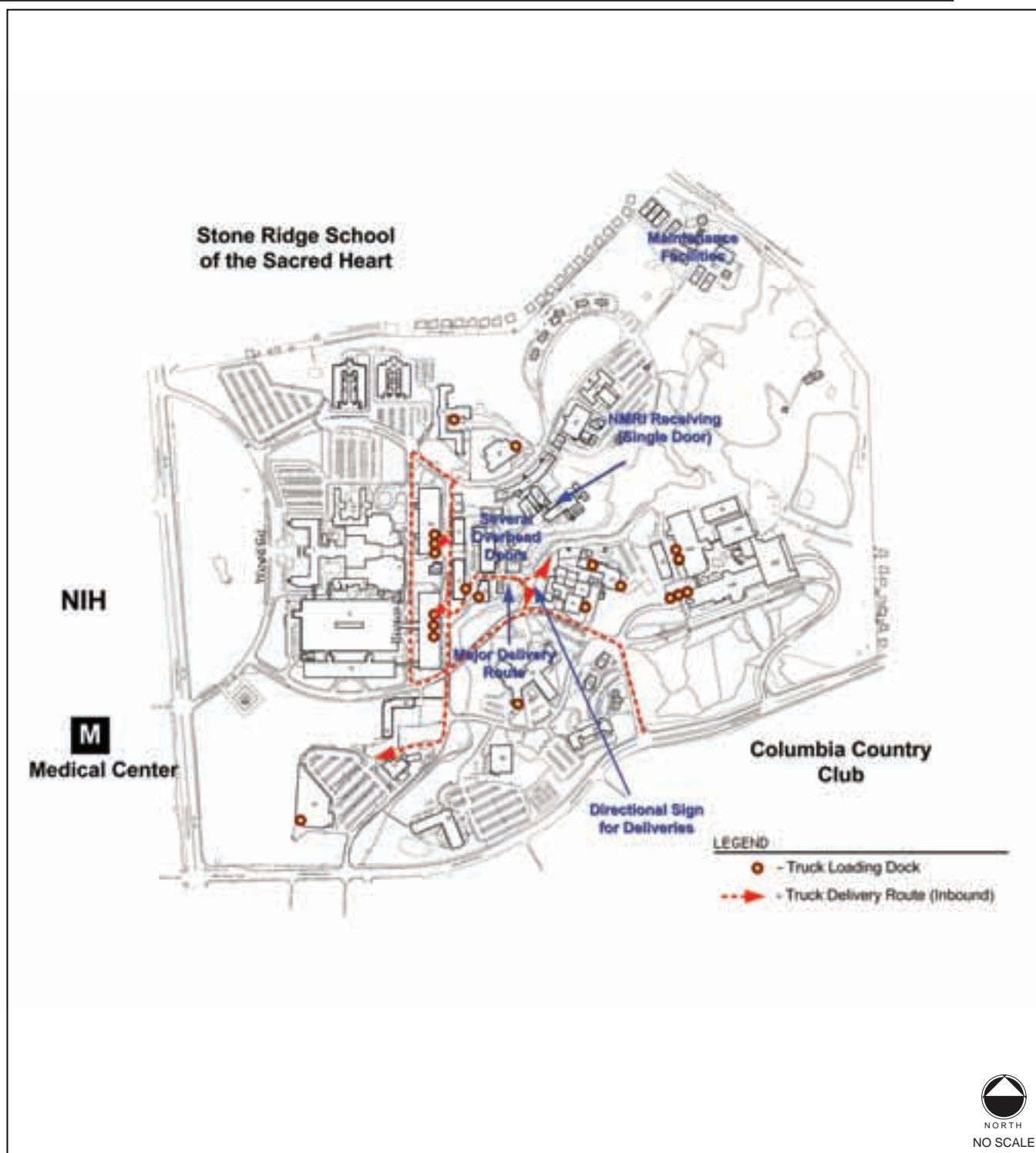
PUBLIC TRANSPORTATION IMPROVEMENTS

- Support ongoing studies by the Washington Metropolitan Area Transit Authority (WMATA) for the provision of an east-side / NNMC portal for the Medical Center Metrorail Station, and the provision of a pedestrian tunnel or bridge linking the Medical Center Metrorail Station with the NNMC campus.

Rationale: These improvements would provide a safer pedestrian experience for commuters and others using the Medical Center Metrorail Station by eliminating unsafe pedestrian movements across Rockville Pike at South Drive. The improvements would increase use of public transportation by employees and others in keeping with the goals of the NNMC Transportation Management Plan.

SHUTTLE BUS SERVICE IMPROVEMENTS

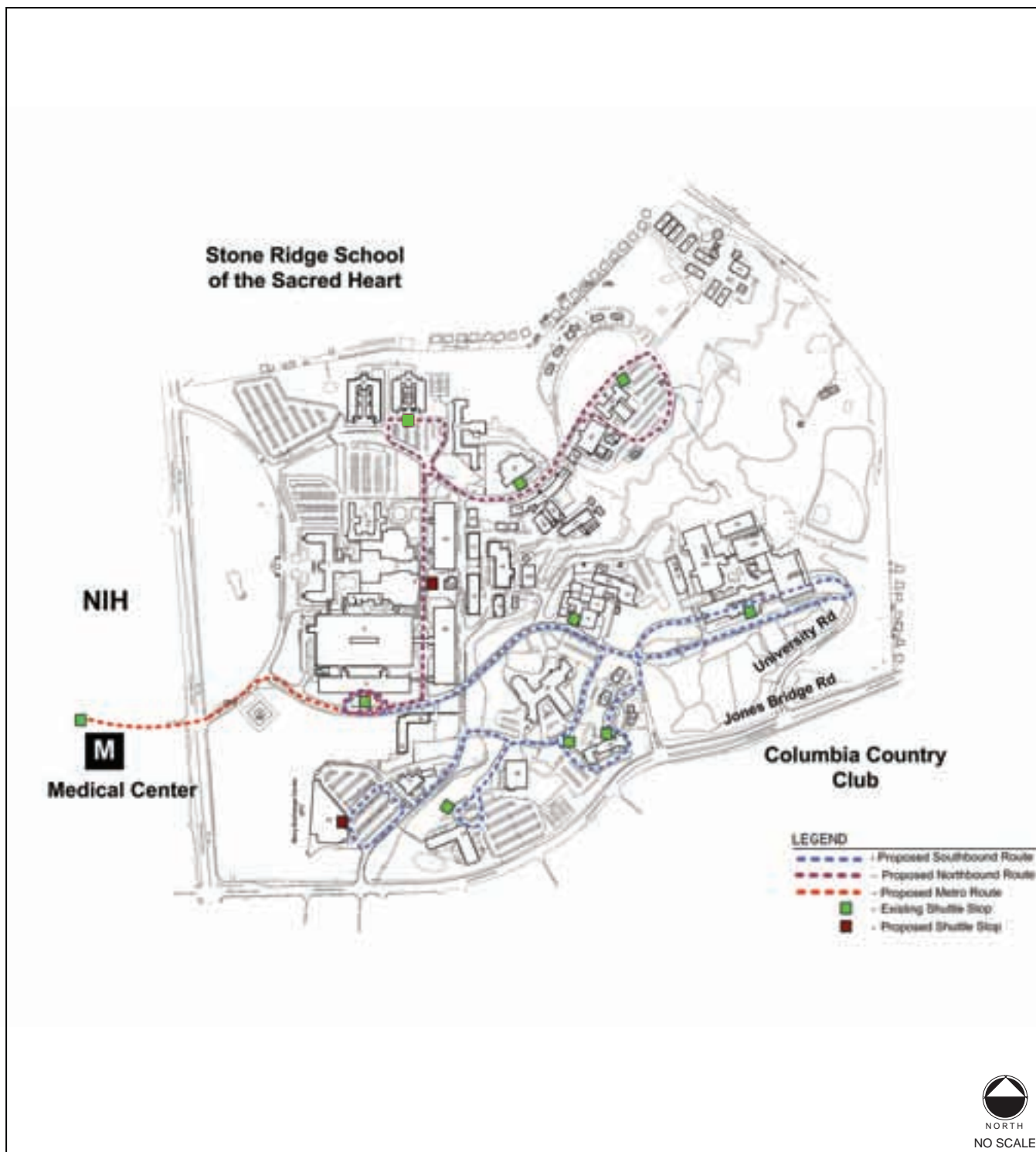
The Navy has proposed the implementation of an enhanced shuttle bus system to improve the quality of services by reducing overall waiting and travel times. The shuttle system will be divided into two parts, the metrorail shuttle and the campus shuttle as shown in Figure 5-6 Proposed Shuttle Routes.



NNMC
Master Plan
Update 2008
Bethesda Campus

Figure 5-5

Proposed Truck Access



NNMC
Master Plan
Update 2008
Bethesda Campus

Figure 5-6

Proposed Shuttle Routes

The metrorail shuttle will be a non-stop service between the Medical Center Metrorail Station and a central transfer point within the complex. This shuttle will operate during the morning peak period between 6:10 am and 8:55 am and evening peak period between, 3:45 pm and 6:30 pm. Due to its short path and non-stop service, it is expected to have a quick turn around time and higher frequency. Future additions may include increasing the shuttle route hours of operation.

The campus shuttle will consist of two shuttles both alternating between the northbound and southbound routes with a common transfer point at Building 10. The two campus shuttles will also run during the morning peak period between, 6:10 am and 8:55 am and evening peak period between, 3:45 pm and 6:30 pm. Future improvements may include increasing the shuttle route hours of operational and the number of shuttles which support the routes, providing for decreased drop-off/pick-up time at shuttle stops.

Rationale: These improvements would increase shuttle bus ridership and reduce parking demand and related circulation inefficiencies, in keeping with the TMP goals.

PARKING IMPROVEMENTS

- Implement a parking supply program for the future, short-term (2011) and long-term (2028), planned land use developments.
- The program should be developed based on DoD UFC design requirements, the utilization of existing excess parking to replace parking spaces to be eliminated and the effective implementation of a Transportation Management Plan (Appendix 1).
- Implement parking management strategies, including the consolidation of surface parking lots, to match UFC parking requirements as amended to accommodate the availability of mass transportation and carpooling.
- Implement other TMP measures (Appendix 1) to reduce employee vehicular trips and related parking demand, and monitor and improve the effectiveness of these measures towards achieving the NCPC parking ratio goal.

TRANSPORTATION MANAGEMENT PLAN (TMP)

A Transportation Management Plan is required in compliance with federal requirements established by the National Capital Planning Commission (NCPC) and documented in the General Services Administration (GSA) Federal Agency Transportation Management Program Handbook (2002). The requirements stipulate that federal agencies with master plan projects resulting in over 500 employees should prepare and effectively implement a TMP approved by NCPC.

A Transportation Management Plan has been developed for the NNMC, and is included as an Attachment. The TMP includes broad goals and

objectives for reducing vehicular trips, influencing positive mode split changes, and increasing vehicle occupancy ratios, all of which are targeted towards reducing congestion and pollution levels. The TMP also provides a description of existing and potential measures for achieving the stated goals and objectives. The TMP goals, objectives and potential measures are as follows:

Goals

- Influence the travel choices of the users of the NNMC site towards reducing their potential adverse impacts on local area traffic congestion and air pollution.
- Establish an opportunity to work cooperatively with federal and local agencies, as well as the adjacent institutions (NIH, Suburban Hospital), towards reducing local area traffic congestion and air pollution.
- Mitigate identified adverse traffic impacts of the proposed new development, as noted in the EIS Transportation Study.
- Reduce obstacles for patient parking (distance, signage, access, and availability)
- Obtain better information needed for analysis of transportation and parking issues.

Objectives

- Reduce existing and future single-occupant vehicular (SOV) trips to/from the NNMC campus, particularly during weekday morning and afternoon peak periods.
- Increase Average Vehicle Occupancy (AVO) ratios from 1.12 to 1.5 by 2018.
- Increase transit mode share by 3% by year 2011 and by 8% by year 2018.
- Reduce parking supply and demand ratios through effective management strategies. Identify Transportation Demand Management (TDM) strategies that will allow the employee-parking ratio to realistically approach the NCPC goal of 1 parking space for every 3 employees by 2018. NCPC also stipulates that the 1:3 parking ratio is only for locations that fall within the 2000 feet distance from the metro portal.
- Identify strategies that can be implemented with other local area agencies and organizations to achieve the TMP goals and objectives, as well as address local area roadway capacity and safety deficiencies.
- Improve patient access and parking.

- Establish procedures and methods to obtain reliable transportation and parking information and data.

Potential Measures

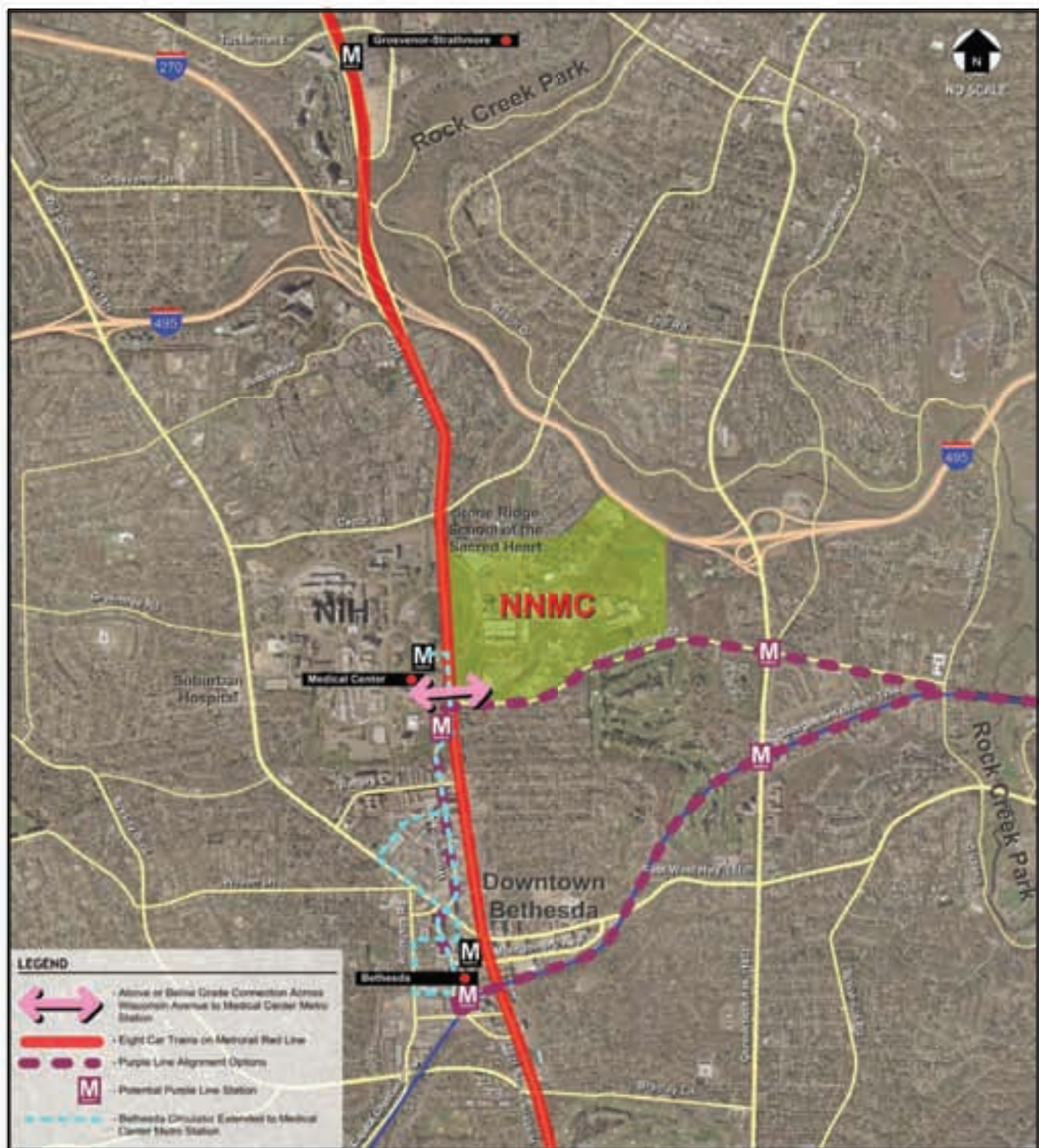
- Transportation Coordinator / Program Manager (PM): This position has been established to coordinate and administer the TMP. This person will be responsible for developing and administering a promotional program for ridesharing and transit usage by employees, visitors and lodgers. The PM will develop and distribute informational and promotional brochures regarding ridesharing and various transit services. The information will stress the convenience factor, environmental and economic benefits, and the traffic reduction benefits to carpooling, vanpooling and transit. This person will provide information on the campus parking permit program, and coordinate “zip code get together” meetings to encourage carpool and vanpool pairings within NNMC. The PM will compile or coordinate NNMC employee participation in the bi-annual State of the Commute Survey, and will participate in the Commuter Connections meetings.
- Ridesharing (Carpool and Vanpool): The Program Manager will promote employee participation in carpooling and vanpooling, through the measures noted above and more. Carpooling occurs when two or more people share a ride in a private vehicle. Carpools generally consist of persons who live in the same neighborhood or along the same route, and use a private vehicle to reach a common or nearby destination. Vanpools consist of seven or more people who share a ride in a prearranged van that could be owned or leased by the riders or the employer. . Currently, the NNMC employees interested in a carpool or van pool are directed to the web link for **Commuter Connections** which is a network coordinated by Metropolitan Washington Council of Governments (COG). This allows users to access a regional database of commuters and gives an opportunity to NNMC employees to find a match for their commute not only from within NNMC but also from other institutes and offices in the Bethesda – Chevy Chase area. NNMC will seek to develop a Kiss-and-Ride area (potentially along Jones Bridge Road near the Navy Exchange and CDC) to help promote carpool/vanpool options with drivers who are not NNMC staff members.
- The NNMC website has a new web page called **Commuter Solutions**. It lists all the commuting options for NNMC staff and contractors who work at the campus. This link provides information about mass transit, carpool via commuter connections, military shuttles in the National Capital Region, Commuter Alerts in the form of live traffic web cams and Park-and-Ride Lot information. It lists staff FAQs which are parking

or transportation related questions received via email, phone or town hall discussions that are relevant to the entire staff. The announcement/newsroom section provides updates to internal/external parking and transportation related delays and construction projects. In addition, it also indicates bike rack locations within campus and other general staff and open parking available within campus.

- **Parking Cash-Out Program:** This involves assigning a value to each parking space and paying employees for not using it. This is a suitable alternative to reducing the number of parking spaces on campus. However, this option would not be practiced since there is no charge for parking and paid parking is not authorized for DoD facilities.
- **Parking Management:** Priority parking spaces will be served for employees arriving by carpool or vanpool, or even those arriving during the less-congested times of the day. The web page on the NNMC website, *Commuter Solutions*, lists the currently assigned preferential parking spaces reserved for carpoolers.
- **Fringe Parking:** The NCPC will support a feasibility study for the provision of fringe parking lots for use by NNMC employees, with shuttle bus connections to the campus. M-NCPPC transportation staff has identified two parcels of land owned by the State which could be developed for fringe parking. These parcels are located within the northeast quadrant of the I-495 at Connecticut Avenue Interchange. A preliminary study conducted by M-NCPPC staff indicates that the total capacity of the lots could be approximately 250 spaces. These facilities would reduce NNMC employee trips and related local area congestion impacts. However the Navy can neither fund the development of such facilities nor run shuttles between the campus and any fringe parking site. Hence this recommendation may not be feasible in future.
- **Guaranteed Ride Home:** This program, sponsored by the Metropolitan Washington Council of Governments, will be used to provide reliable and free emergency ride home from work for commuters who regularly carpool, vanpool, and bicycle and walk, or take transit to work.
- **Flextime/Compressed Work Week Programs:** Those employees who are eligible could participate in a flextime program which allows employees to arrive and depart to and from work during the off-peak periods. The compressed workweek program would provide employees the opportunity to work the same number of hours in fewer days per week, or per pay period.
- **Telecommuting:** Some employees, whose jobs allow working remotely, could be given the opportunity to work from home one

day or more a week, maintaining contact with their office via fax machine, e-mail, and/or telephone.

- **Transit Amenities and Subsidies:** The NNMC campus is situated adjacent to the Medical Center Metrorail Station. The campus also has very easy access to WMATA and Montgomery County Ride-On bus transit routes along Rockville Pike and Jones Bridge Road. The Maryland Transit Administration (MTA) is currently undertaking studies to establish a Purple Line light rail or bus rapid transit connection between the New Carrollton Metrorail Station (in Prince George's County) and the Bethesda Metrorail Station (in Montgomery County). The Purple Line route would also run through Silver Spring where most of the WRAMC employees live, and a potential alignment would be along Jones Bridge Road to the Medical Center Metrorail Station and south along Woodmont Avenue to the Bethesda Metrorail Station. The Washington Metropolitan Area Transit Authority (WMATA) is also conducting a station area access study including the provision of an east side/NNMC station portal and a pedestrian tunnel connecting NIH and the bus station to the NNMC campus. The NNMC transportation program manager will be directed to support those transit and pedestrian improvements and encourage employees to use transit through the issuance of Metrochek subsidies.
- **Shuttle Bus Services:** The NNMC shuttle bus services (noted in Section 2) will be enhanced with the improvements illustrated in Figure 5-7. Greater NNMC Study Area Transit and Shuttle Improvements. Ten to fifteen-minute peak period shuttle headways will be provided together with transit stop amenities including, posted transit route maps and schedules, and shelter and seating on all area shuttle routes will enhance the user experience and make the shuttle system more attractive to non-users.
- **Extension of Bethesda Circulator Route:** The NNMC will explore the feasibility of extending the Bethesda Circulator to the NNMC and NIH campuses, through discussions with the Montgomery County Department of Public Works and Transportation (DPWT) staff. The Bethesda Circulator provides free and frequent all-day weekday and Saturday evening/night service to all key points in Downtown Bethesda.
- **Shared Vehicles:** NNMC currently has few DoD vehicles on campus that are provided to employees who rely primarily on public transportation or alternative travel modes but require a vehicle to make official trips or special personal trips to areas not accessible via transit. NNMC will provide more of such vehicles in the future under the label "motor pool".



NNMCM
Master Plan
Update 2008
Bethesda Campus

Figure 5-7

Greater NNMCM Study Area Transit and Shuttle Improvements

- **Bicycle/Pedestrian Improvements:** The use of alternative travel modes will be promoted through the provision of bicyclist amenities (on-campus Class II or III bikeways and connections to area Class I bikeways, area bicycle network maps and wayfinding signage, racks, bike lockers, and showers located at key locations). NNMC will also support the creation of a bike club to help further promote biking as a viable commuting option. The NNMC will support a connection between the eastern side of Rockville Pike and easier access to the Medical Center Metrorail Station. These improvements will increase the use of Metrorail and Metrobus services and eliminate pedestrian/bicyclist crossings and related safety hazards along Rockville Pike. Finally, the Program Manager will support County efforts to provide improved on-campus paths, sidewalks, and crossings in addition to better connections to the surrounding area pedestrian network will better connect employees, lodgers, and visitors to Downtown Bethesda.
- **Inter-Agency Coordination:** This strategy provides an opportunity for inter-institutional coordination and collaboration towards the achievement of administrative efficiency and economies of scale in the effective implementation of TMP measures, which ultimately benefit those institutions. NNMC will participate in the Medical Center Transportation Management Organization, Keep Montgomery County Moving Forward, and similar organizations to help reduce vehicular trips, and related congestion and pollution within the local area.
- **Base Transportation Committee (BTC):** NNMC will work towards creation of a BTC, which would consist of the Transportation Program Manager, Safety, Facilities, Security and Fire Department at the minimum. This group would work together to define and address commuting and transportation related concerns from patients and staff members.
- **Delivery and Service Vehicles:** Delivery and service trips shall be scheduled to occur outside the AM and PM commuting peak periods of the adjacent roadways, as much as possible.

The TMP will be monitored, evaluated, and restructured as necessary in order to be effective. This process will consider employee surveys, program participation documentation and time sheets/activity logs, vehicular trip generation counts, vehicular occupancy surveys and the monitoring of transit and shuttle bus ridership.

Commercial Vehicle Inspections

The existing method of inspecting trucks at the Navy Lodge/Grier Road entrance for the majority of the commercial vehicles is marginally acceptable with today's traffic load but not desirable for the long term. This process affects normal movement through the gate by bringing non-desirable delivery

and construction traffic through this main location. While there have been discussions with NIH to use their new Transport Inspection Center directly across Wisconsin Ave, this is not considered a long term solution. With increases in construction, there is a need for a NNMC Transport Inspection Center. The master plan considered the area east of Grier Road and the Navy Lodge Gate and the area east of University Road and the USUHS Gate for this purpose. Either of these locations would reduce traffic at the South Gate and on Wisconsin Avenue as they are both accessible from Jones Bridge Road. The location also has enough acreage for the setback requirements of 148', (the equivalent of the perimeter control fence setback), from the inspection station to occupied facilities. The USUHS Gate access was determined to be the better choice for a number of reasons, one of which being that it would allow construction traffic easier access to the perimeter road thus minimizing construction traffic through the main patient staff roads on campus.

The Truck Inspection Center, gate improvements and improvements to the perimeter road are all included in a project programmed for FY10 as a result of the Draft EIS Traffic Mitigation Measures. The project will construct new Entry Control Points (ECP) at the South Wood Road Entrance, the North Wood Road Entrance, the Gunnell Road Entrance, the Grier Road Entrance, and the University Road Entrance. Additionally, this project will expand internal entry and exit traffic lanes to the perimeter gates, widen Perimeter Road to handle freight traffic, widen Brown Road at the intersection of North Palmer Road, and construct a Pass ID Structure with an associated parking lane and parking spaces at the North Wood Road Entry Control Point. A truck inspection station will be constructed at the University Road Entrance.

Metro Link and Wisconsin Overpass

Commuters using the existing Medical Center Metrorail Station must cross Wisconsin Avenue to access NNMC. This intersection is very busy and crossing the multiple lanes is a safety concern. There are two independent proposals being considered. One proposal is for expansion of the Medical Center Metrorail Station to better serve NNMC. The Washington Metropolitan Area Transit Authority (WMATA) is considering a new Metro station entrance on the east of Wisconsin Avenue bordering NNMC campus. The study is being discussed based on concerns of increased traffic with the WRAMC and NNMC realignment. A study being conducted by WMATA is anticipated to be complete in 2008.

The other proposal is for a Wisconsin overpass. A pedestrian overpass for Wisconsin Avenue would reduce the danger to pedestrians as well as allow safe transfer of emergency personnel and patients between NNMC and NIH without restricting Wisconsin as a vehicular evacuation route in an emergency situation. The Bethesda Hospital's Emergency Preparedness Partnership (BHEPP) concurs with this proposal and another bridge between NIH and Suburban Hospital crossing over Georgetown Road.

Close coordination would be required with local hospitals, transportation, and security agencies. The gate to NNMC would have to be modified to allow access to the bridge. NNMC and NIH would have to provide an easement for this to be completed. The ramp to access the bridge is envisioned between the South Gate and Jones Bridge Road. WMATA is also studying this proposal to improve access to the bus stops.

Visitor's Security Center

A 1,000 GSF Visitors' Security Center is proposed at the north end of campus accessible from the North Gate. The Center would allow a designated location to process visitors to the campus and reduce the delays at the Main Gate or South Gate. It also allows complete processing of visitors prior to entering the campus, rather than clearing them at the gate and then requiring an additional stop at Pass and ID in Building 7 as is the current procedure for many visitors. Parking for processing visitors and modifications to the existing security fence would be required. This project is supported by BRAC and is part of the projects identified by the DEIS mitigation efforts along with gate and campus road improvements.

5.6 Requirements Not Included

Throughout the course of the Master Planning process there were some functions that were considered for relocation to NNMC but ultimately not included in the final requirements. These were all part of the analysis at different points in the process. Siting options for some were considered, however once the decision was made that they would not relocate to NNMC, they were eliminated from the master plan. For historic purposes of the process, they are identified here.

- A Consolidated Medical Command of approximately 400,000 GSF and 1700-1800 personnel.
- DoD Extramural Research Activity.
- A second Child Care Center of approximately 24,000 GSF (increasing to 35,000 GSF if the Consolidated Medical Command was located at NNMC).
- The National Museum of Health and Medicine of approximately 40,000 GSF was proposed to be located in the southwest corner of the campus near the proposed Medical Center Metrorail Station for public visibility and access.

5.7 Demolition

There are several facilities that are recommended for demolition in the Master Plan due to existing conditions, inefficiencies, and/or the economics of a renovation to bring them up to current standards. Some of these structures are on sites proposed for new development.

5.7.1 Vacant Buildings

Buildings 22, 29, 49, 69, 146, 150, 153, 174, 176, 188 and 219 are no longer in use and are in a state of abandonment and disrepair. They could be demolished to reduce the building inventory per “Shore Vision 2035” and allow additional surface parking for occupants in the renovated admin space of Building 17. Buildings 18 and 21 are identified as contributing historical structures due to their construction type and are located within the NNMC Historic District, but no longer serve any function and are not believed to be economical to renovate or maintain. Section 106 of the National Historic Preservation Act would apply. Consideration is being given to renovating Building 18 for administrative functions.

5.7.2 Demolition for New Development

There are several buildings in the area of the proposed Fitness Center and one of the potential Administrative building sites. Buildings 28 and 79 are in good condition and are currently used for USUHS Research. Due to the fluctuation of research and types of facilities required, research facilities are often renovated for a finite amount of time. The research in these facilities can be relocated as required based on requirements for new construction proposed. Buildings 53, and 59 are also used by USUHS and Building 141 is partially occupied. These structures may need to be demolished for development of the Fitness Center, parking structure and Administrative building. Building 142 is a modular drive through pharmacy that is not located in a compatible land use area and would be more effective in the community center. Recommendation is that it be incorporated in the expanded NEX development.

As discussed, Building 12 has been demolished for construction of the NICoE for Traumatic Brain Injuries.

Building 23 can be demolished in phases. The west portion could be demolished as part of the current staff parking structure contract. The Fitness Center in the east portion of the building could remain operational until the new Fitness Center is complete. Depending on the timeframe for the construction of the new Fisher Houses, all of Building 23 may be demolished at one time. If that is required arrangements for use of alternative fitness facilities will be required.

5.7.3 Warehouses

Though not identified as a requirement in timeframe identified for the master plan, long term consideration should be given to the demolition or renovation/replacement of the warehouses in the far northeast corner of the campus. Many of these structures are deteriorating and are not optimally utilized. These are appropriately sited however, and there is no change recommended in land use.

5.8 Utilities

5.8.1 Electrical

The BRAC project currently being built will add a significant amount of square-footage to the main medical center. This large amount of new square-footage will require at least two of the existing four primary feeders from PEPCO's Woodmont substation to be upgraded as well as new primary switchgear to be installed in vault # 243.

Also, there are several additional projects identified on the west side of the campus that will also add square-feet of new construction including Lodging and Billeting facilities. These facilities are programmed to be located such that they will be fed from vault # 243. Therefore, the other two of the four primary PEPCO feeders from the Woodmont substation will need to be upgraded in order to accommodate these loads.

Given the age of the existing FPE primary switchgear in vault # 243, replacement parts are very difficult to obtain and we recommend a switchgear replacement project be programmed for completion in approximately the third year of this ten year master plan.

The two 13.8 KV primary feeders from PEPCO's NIH substation that enter the campus where Grier Road ends into Jones Bridge Road supplies power to the Uniformed Services University of Health Sciences (USUHS) complex on campus. These feeders are only loaded to 22% of their capacity. A potential new Applied Research Facility is also sited in the long term master plan and is located near the USUHS complex. This is potentially a new 200,000 square-foot facility. The two existing primary feeders from NIH substation have ample capacity to carry the added load for this facility.

The Building General Conditions reports are located in Appendix A. These reports can be used to identify buildings with fair or poor electrical systems. The buildings in poor condition should have their electrical systems replaced as soon as possible. Buildings that are indicated in fair condition should be considered for electrical system replacement when funds are available on an annual basis.

There is a cogeneration (co-gen) facility project that has been designed for NNMC. The design of this co-gen project began in 2003. The project is designed to generate both electric and steam for use by NNMC. The project includes a 7MW natural gas turbine generator, a heat recovery steam generator and associated equipment designed to produce a plant output of 7MW of electricity and 30,000lb/hr of saturated steam. This equipment is designed to be located in the existing utility plant building 16.

The co-gen concept is designed under the Navy's Energy Performance Savings Contract. This contract requires the project to pay for itself through energy savings within the expected life of the equipment. The project was recently officially removed from consideration in the Fall of 2007; this is due to the proposed stand-by charges and required capitol improvements the

Navy must fund result in the economic matrix not fulfilling the requirements of the Energy Performance Savings Contract. According to the Navy's Program Manager of High Voltage Systems, the Navy will continue to monitor the economics of constructing a co-gen plant at Bethesda. A co-gen plant based on the Navy's Energy Performance Savings Contract may become an economically viable solution to reducing utility energy costs as the campus electrical load grows significantly over the next few years and the cost of natural gas becomes more attractive again.

5.8.2 Communications

There is currently a BRAC project being developed that will build additions to the main medical center. These additions will add a total of approximately 2,722 telephone users to the existing telephone switch.

The existing phone (copper) and data (optical fiber) underground ductbank system will be extended to support the following new facilities:

- NICOE = 350 users
- Administration space = 400 users
- Warrior Transition Unit is included in the addition/alteration to NNMC
- Billeting = 300 users
- SNCO Housing = 25 users
- Lodge expansion = 200 users
- Fisher Houses = 100 users
- USUHS President's House = 5 users
- Child Care Facility = 25 users
- Gym/Fitness Facility = 400 users
- NEX = 600 users

Transportation and Security Improvements = 10 users

Note: the Applied Medical Research Facility will contain its own telephone switch, therefore requiring minimal copper from the NNMC.

The Building General Conditions reports are located in Appendix A. These reports can be used to identify buildings with fair or poor communications systems. The buildings in poor condition should have their communications systems replaced as soon as possible. Buildings that are indicated in fair condition should be considered for communications system replacement when funds are available on an annual basis.

5.8.3 Mechanical

Central Energy Plant: The vast majority of available cooling capacity and the expansion capabilities in the central energy plant will be utilized by the major upgrade of the Medical Center, which is considered the highest priority. It is estimated that this expansion could require as much as 1,800 tons of additional cooling capacity. At peak load, this added load will utilize all of the cooling equipment available in the existing chiller plant with very little capacity available for the redundancy presently provided. It is likely that at least one more water chilling unit will be needed to meet the required loads and provide an acceptable level of redundancy for the first priority construction. Additional construction could add as much as 2,500 tons of additional load. The addition of these loads to the existing chilled water plant will likely exceed the space available in Building 16 for expansion as well as likely exceeding the capacity of the cooling tower, even with the addition of the fourth cell. New buried chilled water loops would have to be installed to each of the building groups to provide the load for the remote building in all for the construction priorities. Although this expansion to the central cooling plant is possible, other options to provide cooling to the new facilities in the second and third phases could include stand alone energy plants for each building or groups of buildings or the construction of a remote energy plant to supplement the output of the existing utility plant.

Many of the issues noted for the cooling plant also apply to the heating plant. Presently there is one stand-by steam boiler for redundant capacity with three primary steam boilers. The first priority construction will likely utilize all available excess capacity in the existing heating plant, likely requiring the use of the redundant capacity boiler to meet the peak loads. The condition of much of the underground steam distribution lines is unknown and cannot be assumed to be in adequate condition to accept additional loads. There are many abandoned underground lines that seem to indicate past problems with the underground steam distribution system. As with the cooling plant, stand alone heating plants for each building, or group of buildings, for the second and third phase construction projects should be seriously considered.

5.9 Phasing

Within the Master Plan are three phases or timelines. (Figure 5-8 Development Phases) The first phase includes the construction and activities required to meet the BRAC completion of 15 Sep 2011. The second phase includes projects that are desirable to support Walter Reed National Military Medical Center but are not part of the BRAC law and therefore are not held to the same completion date. The third phase are projects that are desired to improve the support, but the scopes and requirements are not yet firm or they will be provided through an alternative funding source.

BRAC has an aggressive construction and phasing schedule. The project includes:

- The construction of an approximately 520,000 GSF, six story, with basement, ambulatory care facility (Building A, Business Occupancy) to the north of the medical facility.
- The construction of an approximately 162,000 GSF, four story, with partial basement, diagnostic and testing/inpatient addition (Building B, Institutional Occupancy) located at the south of the existing facility and to the west of existing Buildings 9 and 10.
- The renovation of approximately 317,000 department GSF of the existing medical facility at low, medium or high levels of renovation.
- The construction of approximately 7,300 GSF of three enclosed connecting walkways and a pavilion from Building A to the Patient Parking Structure and from Building 4 back to Building 9.
- The construction of approximately 8,000 GSF for a logistics tunnel and stair running below the courtyards behind Building One from the basement of Building 9 to the basement of Building A.
- All associated sitework, canopies, utilities and infrastructure modifications and expansions and modifications to the existing central equipment plant (Building 16) and the communication ductbank from Building 11 to Building 27.
- An approximately 943 space Patient Parking Structure located north of the existing medical center and adjacent and connected to the Ambulatory Care Pavilion and the existing medical facility by an enclosed walkway.
- An approximately 1204 space Multi-Use parking structure located at the Building 23 site, southeast of the existing patient parking structure (Building 55), which will support NICoE, Fisher House and staff parking requirements. Approximately half of Building 23 will initially be demolished to allow for construction of the new parking structure.

The detailed phasing has not yet been determined. In general, new construction will be completed prior to renovations to the greatest extent possible to allow relocation of functions to the new construction. Some of the parking will be complete before the completion of the additions to reduce the impact of displaced parking due to construction.

Approximately 28,000 GSF of temporary swing space is anticipated to be provided by modular facilities. This space will be used to accommodate displaced functions during renovations in addition to temporary swing space within buildings 1 through 10. Departments located adjacent to the new addition on the west side of Building 9 will have to be relocated during construction and will be affected early in the process, to include

the Emergency Department which will require careful coordination for continuous operation and access.

An RFP for BRAC Phase 2 is being developed for multiple projects similar to the first phase. This RFP will include a new Administrative Building behind Building 17, Renovated space in Building 3 and 5 for WTU Admin, BEQ and Dining Facility, Fitness Center, and a third Parking Deck.

Additional projects are not included in the RFPs, but are being designed and constructed through other avenues and are on similar timelines with the RFPs. For example the National Intrepid Center of Excellence and the Fisher Houses.

Other projects in Phase 3 are still being evaluated, but the Master Plan anticipates their development and provides direction for their construction.

6. DEVELOPMENT GUIDELINES

6.1 Introduction

This chapter includes general recommendations aimed at providing a consistent character with respect to campus development as the NNMC continues to evolve.

Future development of the campus should be aligned with the fundamental goals of the Master Plan. Although some flexibility is necessary in order to implement the Master Plan, the concepts, guidelines, and standards set forth in these Development Guidelines should be considered for all proposed projects and campus maintenance programs. These guidelines recognize the historic prominence of the NNMC and aim to reconcile those principles with emerging needs while maintaining the character and integrity of the Institution.

6.1.1 External Review

The mandate of Section 110 of the National Historic Preservation Act of 1966 (NHPA) to survey, inventory and evaluate National Register of Historic Places (NRHP) eligibility for all cultural resources under its control has been accomplished through cultural resources surveys carried out by professionally qualified consultants, whose conclusions have been reviewed and confirmed by the Maryland Historical Trust or State Historic Preservation Office (MD SHPO). Section 106 of NHPA, as set out in the procedures of 36 CFR Part 800, requires that Federal Agencies take into account the effect of any undertaking upon NRHP eligible resources and allow the Advisory Council on Historic Preservation (ACHP) a reasonable opportunity to comment upon the adequacy of that consideration. In practice, this usually means the review of all projects deemed to have an effect upon designated historic resources or their setting by the MD SHPO.

In the National Capital Region, in which NNMC Bethesda is located, the National Capital Planning Commission (NCPC) also carries out a major review function. NCPC reviews all new construction on Federal land in accordance with the National Capital Planning Act of 1952. NCPC generally requires the existence of an Installation Master Plan approved by it as well as the completion of the Section 106 process prior to commenting on the design and siting of a new construction project. The NNMC is first and foremost committed to serving its patient population through proper land use, design and historic preservation. However, NNMC is ultimately responsible for balancing these values with its mission imperatives.

6.1.2 Navy Guidance

There are several internal Navy guidance documents which shape the planning and development of NNMC, Bethesda. They include the series of past Installation Master Plans (the last in 1990), the 2002 Integrated Cultural Resources Management Plan (ICRMP), and a 1990 Base Exterior Architecture Plan (BEAP). The ICRMP is a compliance and management

plan that outlines how the installation will manage its cultural resources as a part of the basic framework of its operations and missions. It identifies internal processes that may affect cultural resources at NNMC. It recommends strategies for maintaining the resources and complying with Navy, Defense Department, and federal policies. The ICRMP contains treatment norms for the inventory of historic structures.

The Base Exterior Architecture Plan (BEAP) contains recommendations, for the beautification of the installation through landscaping treatment, street furniture, signage, lighting, and the like. It does not contain architectural design guidelines per se.

6.2 Building & Siting Guidelines

The goal of the Building and Siting Guidelines is to preserve/maintain the overall campus proportioning of mass and open areas. Primary reasons for this are to preserve the integrity of the historic core consisting of the Tower (Building 1) and flanking buildings and to encourage intelligent campus planning for future development. Likewise, the preservation of existing natural areas such as the stream and the green spaces surrounding it have been taken into consideration in the development of these guidelines. The 148' and 82' AT/FP (Anti-Terrorism/Force Protection) setbacks apply to the NNMC campus. In light of these requirements a 148' AT/FP buffer should be required around the campus perimeter for all future structures. With most of the proposed construction occurring at or near the perimeter such a large setback could potentially direct most of the development toward the interior, which could potentially compromise the environmental quality of existing natural areas. Upgraded fencing and control systems can supplement the proposed buffer in areas where the 148' AT/FP buffer is compromised by existing structures. Evaluation of existing/potentially renovated structures within this zone should be conducted on a case-by-case basis to determine compliance.

The land use master plan proposals for new development maintain existing land use zones to the greatest extent possible. The master plan also recommends a building height to maintain the scale of the established functional clusters. As the projects are designed and the sites developed, it is important to maintain the AT/FP setback criteria. The volume of requirements and amount of land available throughout the campus will require prudent use of the recommended sites to ensure compliance with all the criteria.

The scale and massing for proposed development is important. Development in the historic district is particularly critical. The aesthetics, exterior materials and detailing of proposed development must recognize the established attributes in this area and reflect a compatible design.

6.2.1 Main Considerations

The preservation of the historic Art Deco Central Tower Block a twenty story tower that serves as a landmark, and the designed landscape of the lawn sweeping downhill to Rockville Pike has been the issue of overwhelming importance in the initial design and every successive expansion of facilities in the western half of the installation. The construction of new medical buildings to the north of the original complex, the Medical Additions, will mirror the construction of the 1970's hospital additions to the south and echo the bilateral symmetry of Building 1.

Based on the development of a Design Concept for the Medical Additions that has taken place, the Commission's review of that concept contains guidelines which may be taken as illustrative of the parameters for new construction in this area. The following key master plan building and siting guidelines have been incorporated in recent developments and should be maintained in future development.

- The proposed additions to the core medical complex should be symmetrical about the Tower, Building 1 in terms of massing and building height.
- The historic view shed in front of the tower should be maintained. The proposed additions to either side of the Tower, should step back to align with the view shed and the arc of Wood Drive on the historic front lawn.
- The proposed additions should respect the height of the Tower and Building 1 by limiting the height of the front of the additions to not higher than the existing wings so as to not compete with Building 1 but enhance its significance.
- The buildings should be symmetrical around Building 1

Existing conditions imposed building and siting guidelines that must be accommodated in future development. The existing helipad and clearance surfaces restrict construction. While development in this area must be carefully evaluated, criteria does not prevent all development within these surfaces. Some sloped surfaces only restrict construction height so that it does not penetrate the transitional surface. While construction of any type is prohibited in the Clear Zone, the Accident Potential Zone allows construction for certain types of land uses to include some recreation, agricultural, transportation, parking and limited low density facilities. Refer to Figures 4-6 and 4-7 for helipad information.

Two sites impacted by this restriction are the National Intrepid Center of Excellence for Traumatic Brain Injury proposed on the demolished Building 12 site and the expansion of the Navy Exchange. The combination of the ground elevation and the building height may not penetrate the 8:1 approach-departure clearance surface which extends for 1200 feet and starts at the edge of the helipad primary surface.

Antiterrorism Force Protection (AT/FP) criteria is farther reaching than the airspace criteria for the helipad and will make development and renovations at the NNMC more difficult and costly than past practices. The setbacks and requirements of AT/FP apply to the entire campus and must be carefully analyzed during project development. There are different criteria for installations with controlled and non-controlled perimeters but NNMC falls within the controlled perimeter requirements. In general terms, any billeting or primary gathering spaces must be setback 82' from any parking or roads while other less dense inhabited buildings must meet a 33' setback. The setbacks from the base perimeter are even greater at 148' and 82' respectively. In the case of the NNMC the controlled perimeter refers to the existing fence surrounding the installation and the checkpoints at each entrance.

The current RFPs for the new medical additions and parking require a 33' setback from the new parking structures to the existing primary gathering buildings. When existing facilities are renovated at a cost more than 50% of their replacement value, a blast analysis will be conducted and the renovation will incorporate any provisions necessary to meet the standard at that time.

The following design and landscape guidelines apply to the NNMC installation as a whole:

- Maintain a landscaped buffer at the southern, eastern, and northern perimeters in consideration of the residential and institutional neighbors.
- Utilize trails, pocket parks, and landscaping to contribute to a pleasant environment for the patients and their families.

6.2.2 Setbacks and Build-to lines:

Major Building Setbacks

The following proposed setbacks and build-to guidelines (Figure 6-1 Major Building Setbacks) have been developed as a result of the previously discussed campus planning goals. Three-dimensional computer modeling of the campus in addition to published plans for development served as the primary means of investigation. Based on AT/FP conventional construction standoff distances, these setbacks aim to preserve the quality of open space surrounding structures. Individual standoff requirements of any particular building should be evaluated on a case-by-case basis to determine AT/FP compliance. While AT/FP criteria prevails, certain areas have alternate setback distances proposed based on the siting or existing structures and the likelihood that no new development will encroach into these areas. The primary setbacks are listed below:

33' – 82' setback from internal roadways.

82'+ setback for prominent campus addresses.



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Master Plan
Update 2008
Bethesda Campus

--- PERIMETER AT/FP SETBACK
--- ROADWAY SETBACK

Figure 6-1

**Major Building
Setbacks**

Open space proportions and building envelopes have been developed from campus cross-sections which include existing and proposed structures.

Future development should be mindful of open space surrounding existing and proposed structures. Care should be taken in the planning and design of spaces created by setbacks as to the degree of enclosure with respect to the location of open space on campus. Denser areas at the campus core should have a more urban courtyard feeling. Spaces opening up onto campus perimeter areas should feature a series of spaces that gradually open up to larger areas thereby mediating the change in scale to off-property areas. Programmed spaces such as pedestrian avenues and courtyards should be planned to balance shaded areas for use during warmer months with open areas that allow for plenty of natural light to enter adjacent buildings.

Areas of concern specific to the NNMC campus are just north of the historic core where the proposed outpatient clinic and parking garage are to be sited south of North Palmer Road. Mediating spaces such as gardens and courtyards generally should not be narrower than the garden spaces located between Building 9 and the historic core. These pedestrian “avenues” contribute greatly to the character of the historic core and while more dense than the surrounding campus, preserve the comfortable “urban” feel of these spaces.

Building / Space considerations flanking and in front of tower:

It should be noted that the “historic view shed” located in front of the hospital tower (Building 1) shall not be encroached upon and serves as a formal foreground to the NNMC campus. Recent development places a new outpatient clinic and additional hospital space flanking the tower in two symmetrical wings. These additions complement the architecture of the original tower.

Build-To Lines

No recommendations have been put forth in these guidelines for any build-to lines, however it should be noted that the previously mentioned new additions to the historic core encroach into the 82' setback recommended for Wood Road. However, these additions frame the tower well and contribute to the foreground space at the main entrance.

6.2.3 Site Detail

Historic View Corridor

As stated in Section 4.5.6 Views and Prominent Features, the view from Rockville Pike of the historic structure is protected based on its listing in the National Register. In order to clearly identify a protected view corridor radiating westward from the tower, formal boundaries should be set in place. Presently the area is bounded by Rockville Pike to the west and

the loop of Wood Road. Future areas of consideration may include but not be limited to the green space north of Wood Road and west of G LOT in addition to the green space south of the heliport and west of the NEX. This would maintain the campus foreground area while simultaneously framing the tower and flanking buildings.

AT/FP Perimeter Buffer Modifications

The 148' perimeter AT/FP buffer may be reduced in places where existing structures not scheduled for removal/replacement are located. However as noted earlier, the individual requirements of any particular building located within this zone should be evaluated on a case-by-case basis.

In addition to complying with AT/FP requirements the buffer zone attempts to maintain the scale and proportion of the original design intent by providing a mediating space between the surrounding smaller scale residential areas and the more dense areas of the NNMC campus.

6.2.4 Areas of concern

South of Palmer Road South

This area contains a number of single-story structures with sizeable footprints in addition to surface parking lots. The area south of South Palmer Road has many opportunities to develop as a series of transitional spaces less dense than the historic core while at the same time maintaining the relationship between building and street. A preliminary provision that allows for such a building-street relationship is the recommended setbacks outlined in Figure 6-1. Greater density in new structures (i.e. multi-story vs. single-story) with clear connectivity to the internal campus has the potential to create pleasant boulevards while simultaneously articulating the transition in scale to the surrounding residential neighborhoods.

Such new development in combination with minimal 33' AT/FP construction stand-offs would allow for intermediate garden and courtyard spaces which could reinforce the architecture and contribute to the overall campus ecosystem.

Plans for renovation or redevelopment at the site of the Navy Exchange (Building #57) should be considered as to how they impact the character and appearance of the neighboring historic district and visual quality of the historic landscape at the front of the campus.

In light of AT/FP requirements the long term placement of the Child Development Center or mitigation measures should be considered as the structure is very close to the southern property line at Jones Bridge Road.

The setbacks established by the Facilities buildings and former Officer's Club are reasonable for Palmer Road South in that adequate greenspace is placed between the building and the street. Also, the change in elevation in certain areas functions as a natural buffer.

There are opportunities to take advantage of the North-South axis established by East Palmer Road. The CDC, NEX and Bowling Alley could be redeveloped to compliment the original order of the historic core, yet take advantage of the nearby stream running through campus. East Palmer Road could potentially be extended south of South Palmer Road to a node off of which the CDC, NEX and Bowling Alley could be organized.

Additional Security Measures

In addition to conventional construction standoff distances the overall security of the campus may be reinforced with continuous perimeter fencing, active barriers at all gated entrances, and through a security master plan.

Existing green areas surrounding the historic core at its edges and along its courtyard spaces should be maintained or expanded to meet AT/FP requirements.

6.2.5 Building Heights

Much of the surrounding spaces to the south, east and a portion of the north boundaries are residential neighborhoods consisting of primarily two-story homes (20 feet). The following figures (Figure 6-2 Building Envelopes and Figure 6-3 Building Envelopes) illustrate the ideal spatial relationships and building envelopes for areas of future development on the NNMC campus.

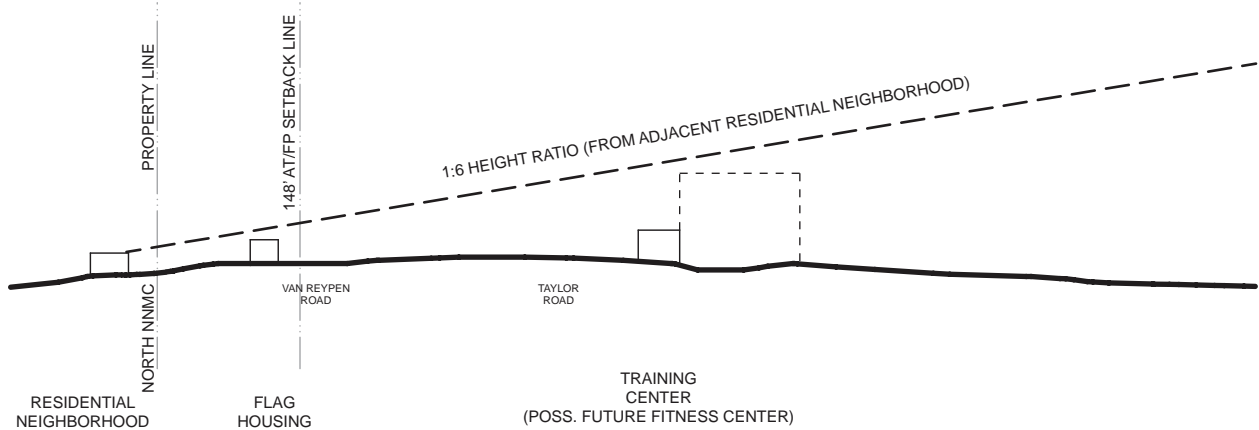
General Campus Height Plan

The general concept of the campus height plan consists of placing the highest building near the center of campus, transitioning to low buildings at perimeter. This “base-middle-top” diagram reinforces the monumentality and proportions of the original historic buildings while mediating the change in scale to the surrounding residential neighborhoods. Likewise, a greater sense of openness is preserved at the perimeter of the NNMC campus.

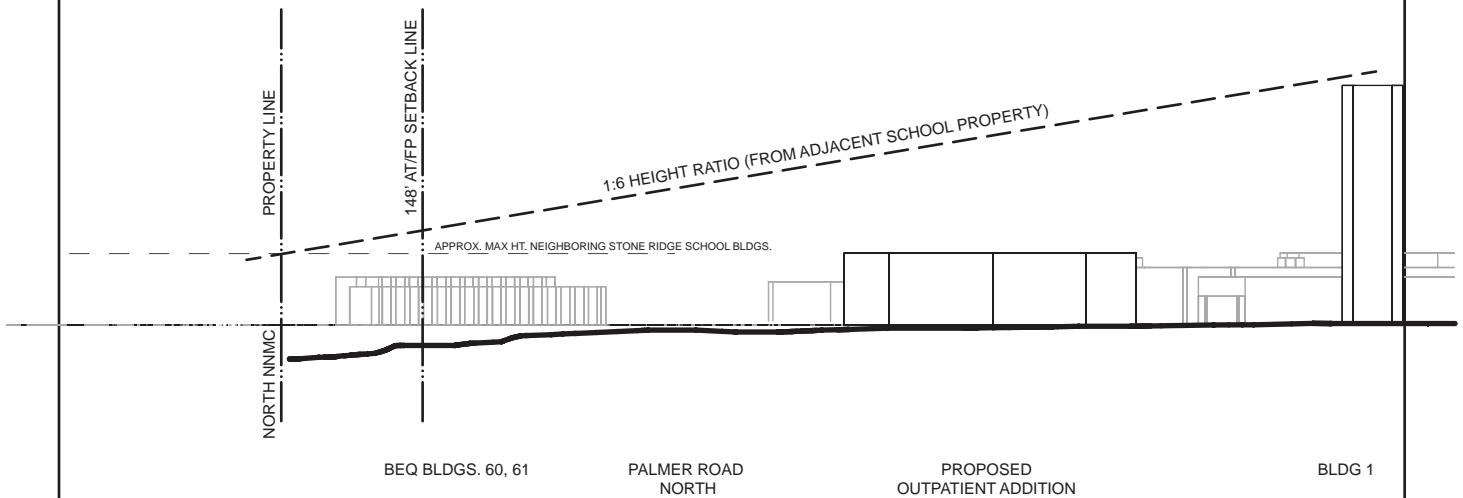
The perception of mass/density can function as a basic wayfinding element for visitors coming from off-site.

Other critical areas

Historic Core (Tower, Bldg. 1): Any expansions or additions to other buildings in the historic core (specifically those located behind the tower to the east) should contribute to the presence of the tower and not compete with the dominant presence of it within the campus. It is possible that, should any of the structures behind the tower have height added to them in the future that the massing of these structures can serve as a “background” to the formal arrangement of the original composition and complement the presence of the tower. Such alterations, if proposed should be carefully evaluated for appropriateness.



Section 3 - Recommended Building Envelope for NE Campus Area - View Toward East



Section 4 - Recommended Building Envelope for NW Campus Area - View Toward East

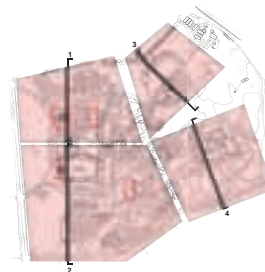
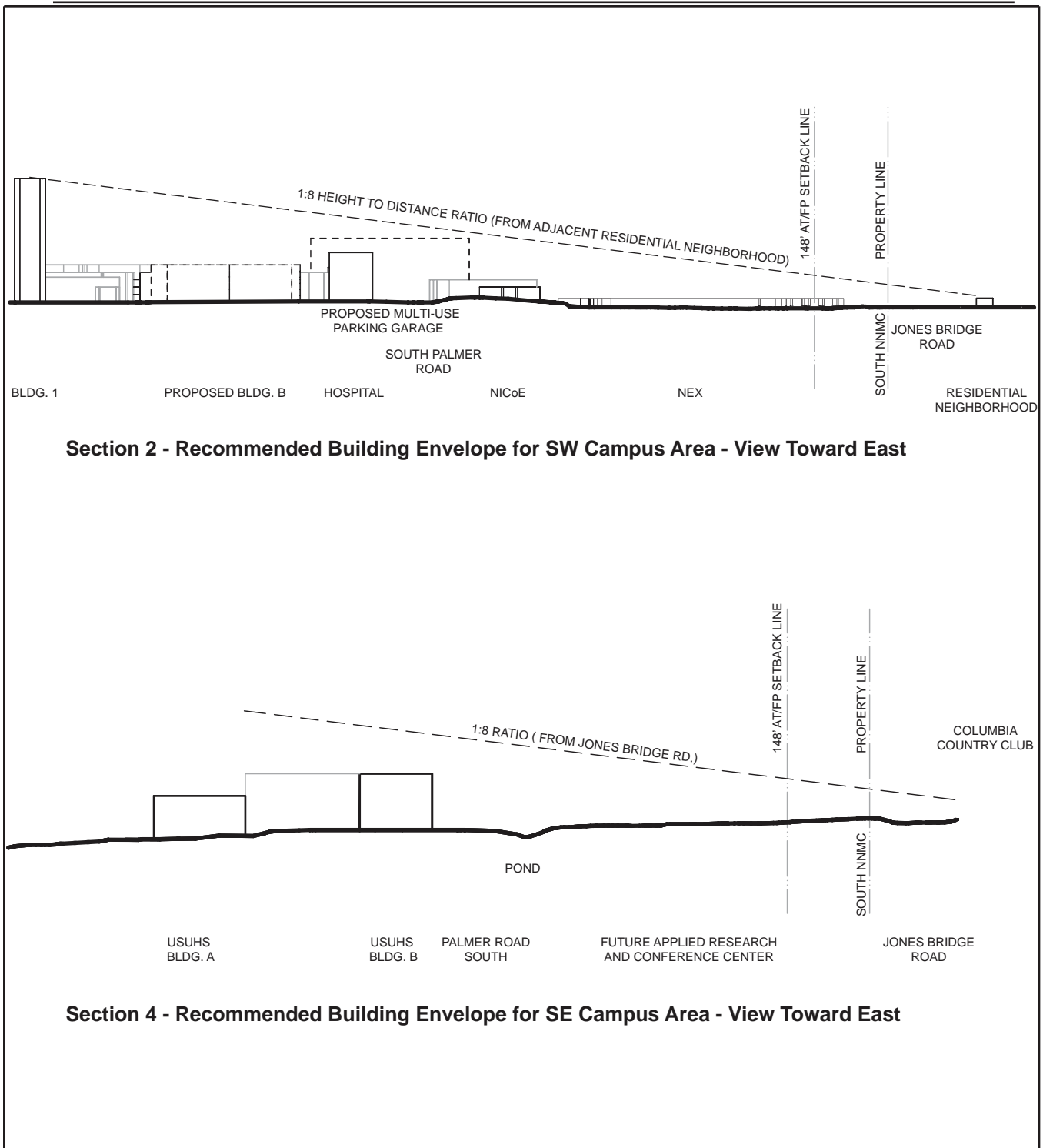


Figure 6-2



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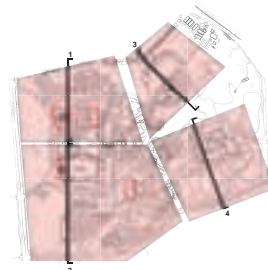
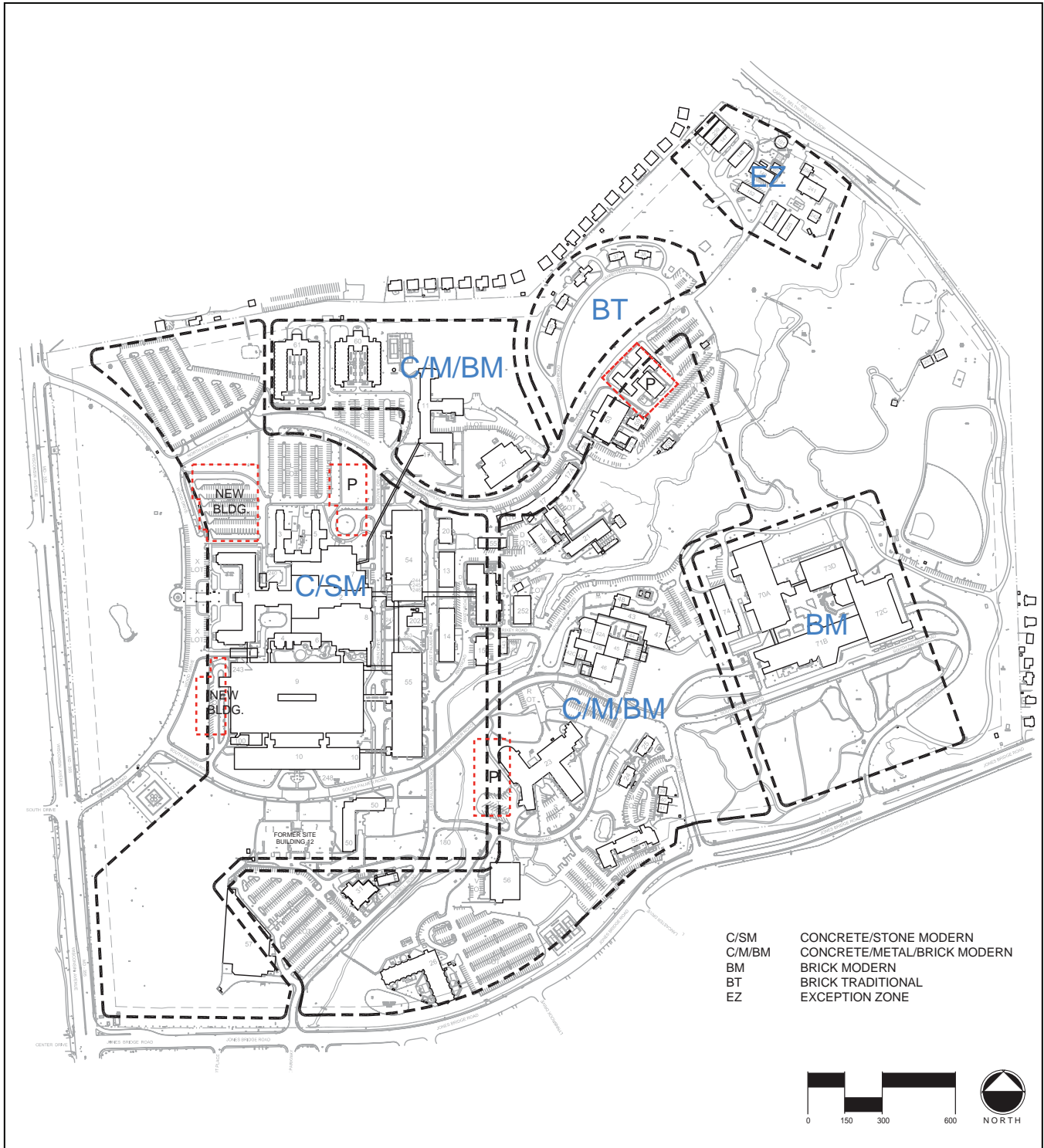


Figure 6-3

**Building
Envelopes**



NNMC
Master Plan
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Bethesda Campus

Figure 6-4

Building Character Zones

There are a number of structures eligible for listing on the historic register. If not currently listed and determined to be a contributing structure, care should be taken to preserve architectural integrity (See Section 6.4.1 Historic Guidelines).

6.2.6 Ground Level Activity and Use

In general building entries should provide for a clear sense of arrival. This makes logistical sense with respect to campus way finding. Campus safety improves with fewer sidewalk extensions to and around buildings with a reduction in through-parking-lot pedestrian traffic.

Blank walls without fenestration should be avoided with the exception of service/loading areas. The percentage of building openings established by the tower (Bldg. 1) and its flanking wings is a good basis for design practice. The proportions of the fenestration openings addresses the pedestrian scale of the environment.

Pedestrian movement throughout the campus should be encouraged. Walkways, benches, and mass-transit stops should be constructed of high-quality materials that resist the elements. Comfortable spaces should be constructed around buildings to encourage the use of outdoor space. Shaded areas are crucial to the success of these spaces.

Other ways to encourage pedestrian activity during inclement weather is with the use of arcades along buildings and covered walkways between spaces.

6.2.7 Density and Bulk

As indicated in the campus cross-sections the NNMC campus should be denser at the core than at the periphery. Development in this fashion aims to preserve the natural character of the campus at the perimeter for a more integrated campus image. Likewise, the wooded spaces along the creek present excellent opportunities to integrate architecture with nature. Care should be taken to preserve the abundant green spaces on the east side of campus. These spaces serve as a visual buffer for the adjacent neighborhood and from the Capital Beltway (I-495). Improvements in the recreational spaces and walking trails located within these wooded areas can encourage pedestrian use.

The NNMC campus is fortunate to have green/wooded spaces at its center and perimeter. The filling-in of these spaces is discouraged as it is an inefficient use of available land and diminishes opportunities for occupiable outdoor space and future growth.

Development should occur in phases over time in order to prevent overwhelming additions of mass to the NNMC campus. Building in groups or modules can integrate outdoor spaces into buildings. Future development should maintain groups of buildings along major boulevards, yet allow these buildings to address green areas to the rear of sites. This

would help to form yards and appropriate buffers between structures and campus boundaries.

6.2.8 Rooftop Elements

Rooftop elements such as penthouses, smokestacks, chimneys, and antennas should be designed into the building architecture in order to minimize their impact. Mechanical penthouses and enclosures should contribute to the overall building architecture and not be perceived as “fences” or screens. Attractive roofscapes consisting of green roof garden elements can contribute greatly to building aesthetics and inherent value in addition to providing occupiable outdoor space above the ground plane. Green roof/terrace areas can also provide insulation for interior spaces.

Communications equipment such as antennas and satellite dishes should be located for minimal visual impact. Antennas should be placed at least 20 feet back from roof edges. Antennas or transmitters that cannot be screened should be placed adjacent to penthouses or other roof masses so that they do not stand alone. When possible antennas should be of a color/material that blends with the building with as minimal of a profile as possible.

6.3 Historical and Archeological Guidelines

6.3.1 Historical Guidelines

The National Naval Medical Center Historic District recognized by the Maryland Historical Trust consists of the primary World War II core of the complex designed by Architect Paul Cret. This Historic District encompasses 18 contributing structures (including one previously listed individually, the Bethesda Naval Hospital Tower Block), one contributing site, and 18 non-contributing structures.

- The NNMC Historic District Building Inventory (Contributing Structures)

Building 1	Main Hospital Building
Building 3	Ward Building No. 3
Building 5	Ward Building No. 5
Building 11	Bachelor Officer Quarters
Building 13	Logistics and Shops
Building 15	Public Works/Maintenance Shop
Building 16	Power Plant
Building 17, 17A, 17B	Administration
Building 18	Animal Building
Building 20	Firehouse
Building 21	Research (Vacant)
Building 30	Flagpole
Building 34	Surgeon General's Quarters
Building 35	Office's Quarters
Building 36	Officer's Quarters

Building 37	Officer's Quarters
Building 38	Officer's Quarters
N/A	Landscape

• The NNMC Historic District Building Inventory (Non-Contributing Structures)

Building 2	Subsistence and Recreation Wing
Building 4	Ward Building No. 4
Building 6	Ward Building No. 6
Building 7	Administration and Clinical Spaces
Building 8	Administration and Clinical Space
Building 9	Hospital
Building 10	Hospital
Building 14	Administration
Building 23	Officer's Club/Recreation Building
Building 27	Administration
Building 53	Administration
Building 54	Medical Warehouse/Parking Garage
Building 55	Parking Garage
Building 60	Bachelor Enlisted Housing
Building 61	Bachelor Enlisted Housing
Building 139	Administration
Building 141	Naval School of Health Sciences
Building 200	Heliport

Should any work/maintenance be undertaken on any existing structures on the NNMC campus which may be deemed historic in nature the Secretary of the Interior's Standards for Rehabilitation shall apply and/or any agreements reached with the Maryland State Historic Preservation Office and NCPD.

6.3.2 Cultural Resources

Previous Cultural Resource Studies

NNMC has conducted four prior cultural resource studies, and one synthesis study. Previous cultural resources studies within the NNMC campus have included intensive archival research, archaeological assessment of potential, and an architectural survey conducted to prepare a Historic and Archeological Resources Protection Plan (Comer et al. 1996), a subsequent Phase I archaeological survey conducted in accordance with the recommendations of the 1996 HARP (Fiedel et al. 2001), and an updated Cultural Resources Management Plan (ICRMP) (URS 2002) which re-evaluated the status of both architectural resources and the potential for archaeological resources based on the 2001 Phase I survey.

The 1996 HARP represents a collaborative effort between EAC/A, Robinson and Associates, and Baker and Associates (Comer et al. 1996). This plan provided a detailed land ownership and a land use history for the parcels later combined into the NNMC campus, and a history of the conception, initial

mid-twentieth-century construction, and subsequent late twentieth-century expansion of the NNMC campus itself. The HARP also provided extensive evidence of widespread soil disturbance within most of the campus in the form of historic photographs from the construction of the historic NNMC core. Based on that level of documented disturbance, subsequent studies have focused on areas outside the historic core as those most likely to retain any potential for *in situ* archaeological deposits.

This approach was explicit in the subsequent Phase I survey conducted within NNMC in 2001 (Fiedel et al. 2001). Specifically, that survey addressed areas within the NNMC campus which “MHT identified... [which] might not have been eradicated by previous construction activities” (Fiedel et al. 2001:5). These areas included the floodplains, terraces, and adjacent ridge tops along Stoney Creek as it passes through the eastern portion of the NNMC campus. The 2001 Phase I survey encompassed 36 acres within the central-eastern portion of the NNMC campus, and addressed “areas with a slope of less than 8 percent, ...less than 200 m from water, with relatively well drained soils...” (Fiedel et al. 2001:23). The survey also included one area adjacent to officer’s housing which fell outside these characteristics, but which showed minimal evidence of past disturbance. The testing identified three prehistoric sites; two located along the northern floodplain and terrace of Stoney Run (18MO556 and 18MO557), and one on a ridge top south or east of Stoney Run (18MO555). Three prehistoric artifacts interpreted as isolated finds were also recovered. Minor scatters of historic and modern period artifacts were also noted during the survey.

Only 18MO556 was considered to yield temporally diagnostic materials, and was interpreted as a Late Archaic occupation, with no functional interpretation offered. 18MO555 comprised the largest of the three sites, but was restricted to the plowzone. The final site, 18MO557, consisted of two flakes, and was recommended as ineligible for listing in the National Register of Historic Places due to its extremely limited research potential. Further testing to determine the research potential and hence National Register eligibility of both 18MO555 and 18MO556 was recommended, but has not been carried out to date.

The Integrated Cultural Resource Management Plan (ICRMP) prepared in 2002 served to update the campus policy in light of additional research conducted after the 1996 HARP study, including both the 2001 Phase I survey (Fiedel et al. 2001) and additional archival research and architectural evaluation conducted as part of a 1998 preparation of a National Register Nomination Form for a proposed NNMC Historic District encompassing the core World War II features designed by Architect Paul Cret (Baker and Associates 1998). This latter study did not include additional archaeological survey work.

Finally, as part of this master plan process, EAC/A conducted a Phase I archaeological identification study of roughly 14 acres in the southeaster corner of the NNMC campus, believed to be the last large, undisturbed

area within the campus with the potential to contain *in situ* archaeological deposits (Harris, Fracchia, and Comer 2006). This survey identified five potential prehistoric sites, and a large area of mixed and apparently redeposited historic materials along the eastern campus perimeter. Based on the amount of prior disturbance noted, these historic material were not registered as an archaeological site, and not recommended for further study.

The five prehistoric sites identified during the survey represent small lithic scatters, most of moderate to light density. One site, 18MO648, was interpreted as to be a lithic scatter representative of a short term resource procurement camp, with moderate density and variability within the lithic assemblage. However, the topographic context of this site, and the unusually high gravel content noted in the soil matrix, suggests the some portion of the site may represent redeposit of eroded soils from high on the ridge. The remaining four sites were interpreted as small lithic scatters indicative of short term or single use campsites.

After MHT review, and by letter dated April 18, 2007, all five site were considered not potentially eligible for listing in the National Register as they have little potential to yield significant information through further study, and no further work is recommended for these sites.

Cultural Resources Present within the NNMC Campus

Past studies of the NNMC campus have identified eight archaeological sites, numerous architectural resources within the state listed Historic District (The National Naval Medical Center), and one adjacent locally designated historic district (The Hawkins Lane Historic District).

The National Naval Medical Center Historic District recognized by the Maryland Historical Trust consists of the primary World War II core of the complex designed by Architect Paul Cret. This Historic District encompasses 18 contributing structures (including one previously listed individually, the Bethesda Naval Hospital Tower Block), one contributing site, and 18 non-contributing structures.

The Hawkins Lane Historic District consists of residential structures along both sides of Hawkins Lane, forming the eastern campus boundary. This resource appears in the Maryland State Inventory listings, but no supporting documentation is on file. It represents a locally designated historic district whose view shed includes the eastern portion of the NNMC campus.

6.4 Circulation Guidelines

6.4.1 General

Campus circulation guidelines are based on the following planning principles:

- Provide an efficient, effective and safe transportation network that enhances access and circulation for all modes (passenger vehicle, pedestrian, bicyclist, shuttle bus, truck) and enhances the quality of life on the campus.
- Provide patients and their visitors with sufficient, convenient parking that meets their needs.
- Provide pedestrians, bicyclists and transit priority over passenger vehicles.
- Safely and efficiently satisfy the parking needs of employees, visitors and lodgers in keeping with the goals established by the NNMC Transportation Management Plan.
- Evaluate parking areas to increase efficiency and accessibility, and to reclaim green space.
- Effectively integrate the campus transportation system with public facilities and services, including the Medical Center Metrorail Station and pedestrian and bicyclist facilities.

6.4.2 Parking

Additional parking is required per the BRAC initiative for the NNMC campus. Three parking garages, one patient/visitor and two multi-use, have been proposed as part of the initiative with two garages being built in the foreseeable future. Presently, surface parking is more prevalent in the southwest portion of campus.

At this time, surface lots dominate the foreground of the southwest portion of the NNMC campus. Portions of I LOT and H LOT extend into the proposed 148' AT/FP buffer at the south campus boundary. Future development along South Palmer Road will provide for more green space at the perimeter in addition to meeting basic AT/FP requirements. Natural buffers within this space can work in conjunction with a revised building height envelope to create a more pleasant series of spaces at the campus perimeter.

Surface and structural parking should be screened at the perimeter with plantings, berms, and low walls and integrated into the topography where possible. Numerous opportunities exist within the NNMC campus to take advantage of the site cross-section for these purposes. Provisions should be made for incorporating planting islands into new parking lots in an effort to break-up paved areas. Parking surfaces within surface lots should be composed of durable, (semi-permeable, if possible) materials to offset the drainage issues created by large impervious areas.

In areas where curbside parking is allowed, parking should be for a limited time or special needs. Accommodations for ADA parking/accessibility should be as close to building entrances as possible and clearly marked.

Refer to the Transportation Management Plan in the Appendix for further discussion of transportation and parking issues.

6.4.3 Service

Currently, Perimeter Road at the east side of the NNMC campus is not large enough to handle truck traffic. If improved, this road can serve as the primary service entrance via University Road in conjunction with a checkpoint at the proposed commercial vehicle inspection (CVI) station. This would pull service traffic to the back of the campus, segregating it from patient and visitor traffic.

In general, loading areas should be provided at the rear of buildings and grouped together in highly congested areas to provide shared loading space. Proper maneuvering clearances should be provided for maximum anticipated delivery vehicles. If the site section allows, loading areas should be integrated into landscape berms or screened by vegetation to minimize visual impact. No major loading should take place on or across streets or within parking facilities.

Short-term deliveries can take place from short-term parking areas adjacent to buildings with maximum allowable parking times clearly posted. Long-term vendor/contractor parking should occur at designated areas within staff or visitor parking facilities.

In short, employee, visitor and service/delivery traffic and parking should be separated as much as possible to facilitate efficient movement throughout the NNMC campus.

6.4.4 Pedestrian and Bicycle Traffic

The campus land uses are connected by a network consisting of sidewalks, crosswalks and other pedestrian amenities. There are no exclusive bicycle travel facilities on the campus as low speed limits (maximum 20 MPH) make this unnecessary.

The primary pedestrian flow occurs among three land use categories within the campus, namely the transit center, the parking lots and campus building facilities. The building facilities can be divided into five broad categories, namely the Hospital, Research, USUHS, Comfort Zone and Lodging. Secondary pedestrian flow occurs between two interactive facility land uses like the Hospital facilities and the Comfort Zone (which includes employee amenities like Gym/Day Care and Dining Areas) or between Research and Hospital facilities. Figure 4-23b shows the major pedestrian desire paths with respect to the land uses. This figure also shows that all of the major land uses are within a five-minute walking distance from the center of the campus.

Right-of-ways and street cross-sections should be updated to incorporate adequate bicycle lanes in addition to protected pedestrian paths.

Pedestrian/vehicle conflict points should be avoided as much as possible in order to preserve the hospitable pedestrian environment on the NNMC campus. Sidewalks and crosswalks should be clearly marked with equally visible signage for pedestrians and motorists. Some of the existing pedestrian warning signage is difficult to read and should be replaced/repositioned for better visibility (See Section 6.6.4 Exterior Signage.)

The transportation analysis shows that some crossings are not marked properly. Crosswalks should be clearly marked at all locations. Within the historic core or adjacent to historic structures crosswalks should feature durable brick or stamped paving that clearly contrasts with the roadway surface. In other areas of campus, conventional striping may be used.

As indicated in the transportation analysis, some sidewalks on the NNMC campus are too narrow and suffer from poor maintenance (i.e. poor lighting, lack of lighting, etc.). Street cross-sections need to be evaluated for proper clearances, buffers and areas of refuge for pedestrians. In addition, roads that lack sidewalks altogether should be evaluated based on the major desire lines established in the transportation analysis as to whether new sidewalk construction should take place.

Bus shelters which provide access to campus shuttle buses should be provided at the most-frequently used stops to encourage the use of this mode of transportation.

Existing pedestrian paths and major desire lines should receive improvements in order to accommodate demand and improve connections to the core of the NNMC campus. The South Gate serves as the main access point for pedestrian traffic, most of which originates from the nearby Medical Center Metrorail Station. The lighting plan (Figure 6-8) refers to recommended pedestrian lighting throughout the NNMC campus. Access points for pedestrian and vehicular traffic are indicated on the Signage Plan (Figure 6-7).

In general crosswalks should be precisely placed in order to facilitate efficient movement of pedestrians throughout the NNMC campus. Proper placement can contribute to the sequence of entering facilities and complement the architecture in addition to providing for a safe movement. The relationship of any surface or on-street parking should be considered in relation to the pedestrian path. Greenways along major thoroughfares can serve as a buffer between pedestrians and vehicles while complementing roadway aesthetics.

Pedestrian and bicycle access for staff and visitors is allowed at all entry gates. Such an arrangement aims to promote these alternative modes of transportation for the most-frequent commuters to the NNMC campus.

In an effort to balance the presence of automobiles on campus with alternate methods of transportation such as mass-transit the NNMC should consider establishing a connection to the Montgomery County Bikeway System. Bicycle access can be allowed at all main vehicle entrances including service entrances provided adequate pathways are provided for vehicles and bicyclists. Linking the existing network of trails on the east side of campus should be considered as well to promote the use of these trails for recreational purposes. All on and off-road pathways should be maintained clear and level with minimal interference from manholes and drainage grates.

6.4.5 Mass Transit

Support and encourage ongoing studies by the Washington Metropolitan Area Transit Authority (WMATA) for the provision of an east-side / NNMC portal for the Medical Center Metrorail Station, and the provision of a pedestrian tunnel or bridge linking the Medical Center Metrorail Station with the NNMC campus. Modify the existing shuttle bus routes accordingly to include a potential east side / NNMC Metrorail Station portal, and provide more efficient coverage and circulation within the campus as well as upgrading the campus pedestrian links to the Metrorail station. The Maryland Transit Administration (MTA) is currently undertaking studies to establish a Purple Line light rail or bus rapid transit connection between the New Carrollton Metrorail Station (in Prince George's County) and the Bethesda Metrorail Station (in Montgomery County). The Purple Line route would also run through Silver Spring, and a potential alignment would be along Jones Bridge Road to the Medical Center Metrorail Station and south along Woodmont Avenue to the Bethesda Metrorail Station. The NNMC should explore the feasibility of extending the Bethesda Circulator to the NNMC and NIH campuses, through discussions with the Montgomery County Department of Public Works and Transportation (DPWT) staff. The Bethesda Circulator provides free and frequent all-day weekday and Saturday evening/night service to all key points in Downtown Bethesda.

6.5 Site Performance Guidelines

6.5.1 Building Character / Materials

Figure 6-4 Building Character Zones refers to the suggested building character and materials palettes for all new construction / building modifications. The character types established in section 4.6.2 have been simplified in an effort to simplify future development and unify the campus. A Concrete / Stone Modern aesthetic is recommended within and surrounding the NNMC Historic District in character with the original campus structures including the Tower and flanking buildings. New development proposed in this zone adheres to this aesthetic quite well while reinforcing the monumentality of the original structures. East of the Historic District and encompassing it to the north and south a Concrete / Metal / Brick Modern aesthetic has been established. Due to the age and condition of structures

in this area numerous potential construction/renovation projects may take place in the coming years. A clean, modern aesthetic consisting of concrete / metal / brick is indicative of emerging technologies yet complements the architecture of the Historic District without competing for presence. Further east, the area around the USUHS buildings has been identified as Brick Modern in keeping with the cohesive internal campus of the school. Brick as a material also marks the gradual transition to natural areas of campus which occurs in this area. Brick is also used in the existing temporary housing area (Navy Lodge and Fisher Houses). The area consisting of the FLAG Officer's Quarters along Van Reyden Road and grass area to the south has been identified as Brick / Traditional in keeping with the nature of these buildings. The only exception zone identified at this point consists of the physical/plant facilities structures at the northeast corner of campus. Proposed expansions of these structures are not anticipated to interfere with surrounding character zones.

6.5.2 Landscape Design and Planting Criteria

The campus is very "green" with mature landscaping lining avenues and boulevards throughout campus

Care should be taken to maintain such cross section(s) for all existing and planned roadways. Likewise buffers and setbacks between buildings should maintain similar quality space as the existing courtyards and pedestrian ways inside the historic core.

Cross-sections should be established for all roadway types

6.5.3 Streetscape / Pathscape – Patient and Visitor Entry Sequence

The mature landscape of the NNMC campus is one of its most positive attributes. The mature trees and plant materials provide a park-like, unifying feature and are a nice contrast to the increasingly urban character of the area.

Many studies confirm the positive results of patients interacting with nature during the healing process. These all support Evidence Based Design concepts used extensively in current design practice. While it is not practical for patients to be transported to the serene heavily wooded areas of the campus to enhance their healing process, the concepts of nature can certainly be brought to the patients. The existing courtyards located in specific building clusters attempt to incorporate landscaping and extend this natural feature to the built environment. A greater effort should be made in these areas, particularly in the courtyards within the patient core buildings. Many of these courtyards were not designed to encourage people to stay and relax. These areas need to be redesigned to incorporate meditative spaces that are comfortable with both areas for solitude and family visits. The spaces should include meandering paths, a variety of landscape and special features such as water elements.

Evidence Based Design encourages consideration of the total visit in the design of the facilities and not just the patient treatment areas. This includes interior waiting areas, reception, and amenities available during their visit, but also extends to the exterior environment. From the patient or visitor's entry on the campus to their departure, the environment is part of the process of healing for families and patients.

One of the opportunities to improve this process is the area between the current parking garages and the medical core buildings. Brown Drive is a hard line between the patient's arrival by vehicle and their arrival for their visit to their specific treatment area. The gap in this process, (Brown Drive and this physical divide), can be softened and become a contributing part of the visit by extending the concept of the courtyards and exterior spaces toward the parking garages. It should further be carried between the two parking structures toward the central wooded campus to enhance the natural features. (Figure 6-5 Brown Drive Streetscape Concept)

Minimizing traffic on this road and discouraging through traffic will enhance this concept. While access to the parking structures must be maintained, increasing the landscape with shade trees and smaller scale flowering trees by the pedestrian crossings and developing seating clusters with appropriate lighting would extend the courtyard concept and provide continuity from the patient's arrival by vehicle to their check in point. (Figure 6-6 Brown Drive Streetscape Section)

6.5.4 Exterior Signage

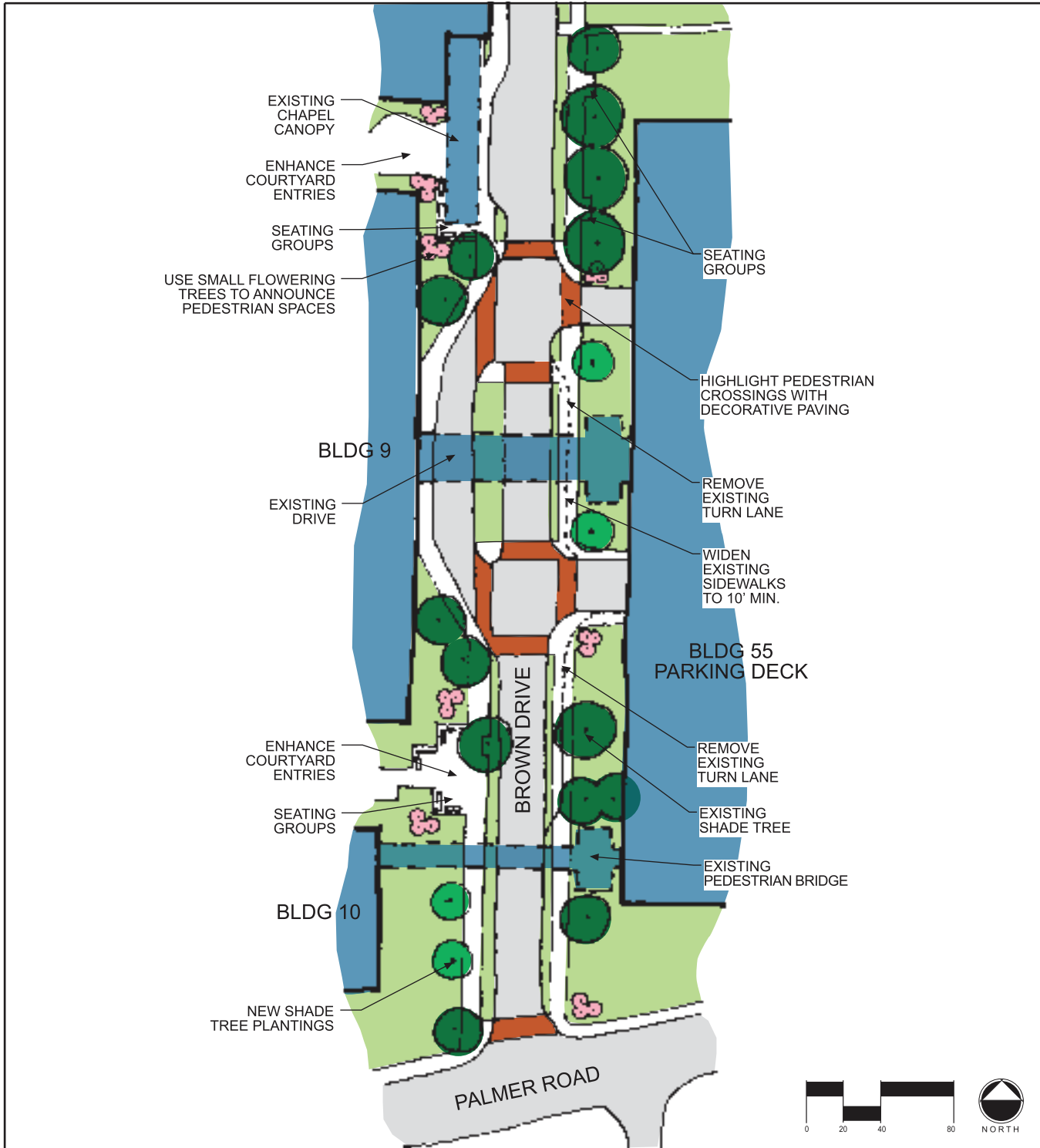
The proposed Signage Plan for the NNMC campus seeks to unify signage types into two primary categories: 1.) entry signage and 2.) directional signage. The two major entries off of Rockville Pike should feature appropriate signage that identifies them as visitor entries. All entrances along Jones Bridge Road should feature secondary entry signage with the entrance to the future commercial vehicle inspection (CVI) entrance clearly indicated.

Within the NNMC campus primary directional signage has been indicated at all major intersections. Loop road signage has also been indicated for North and South Palmer Roads, East Palmer Road and Brown Drive.

A signage plan which clearly addresses different categories of way finding in a campus environment should be implemented in the future.

Suggested signage categories:

- **Orientation** - site maps near campus entries and area maps in the core of the campus.
- **Direction** - to major campus buildings and areas, both for vehicles and pedestrians. Notations of accessible routes for persons with disabilities.
- **Identification** - campus entry signage and exterior building and place signage.



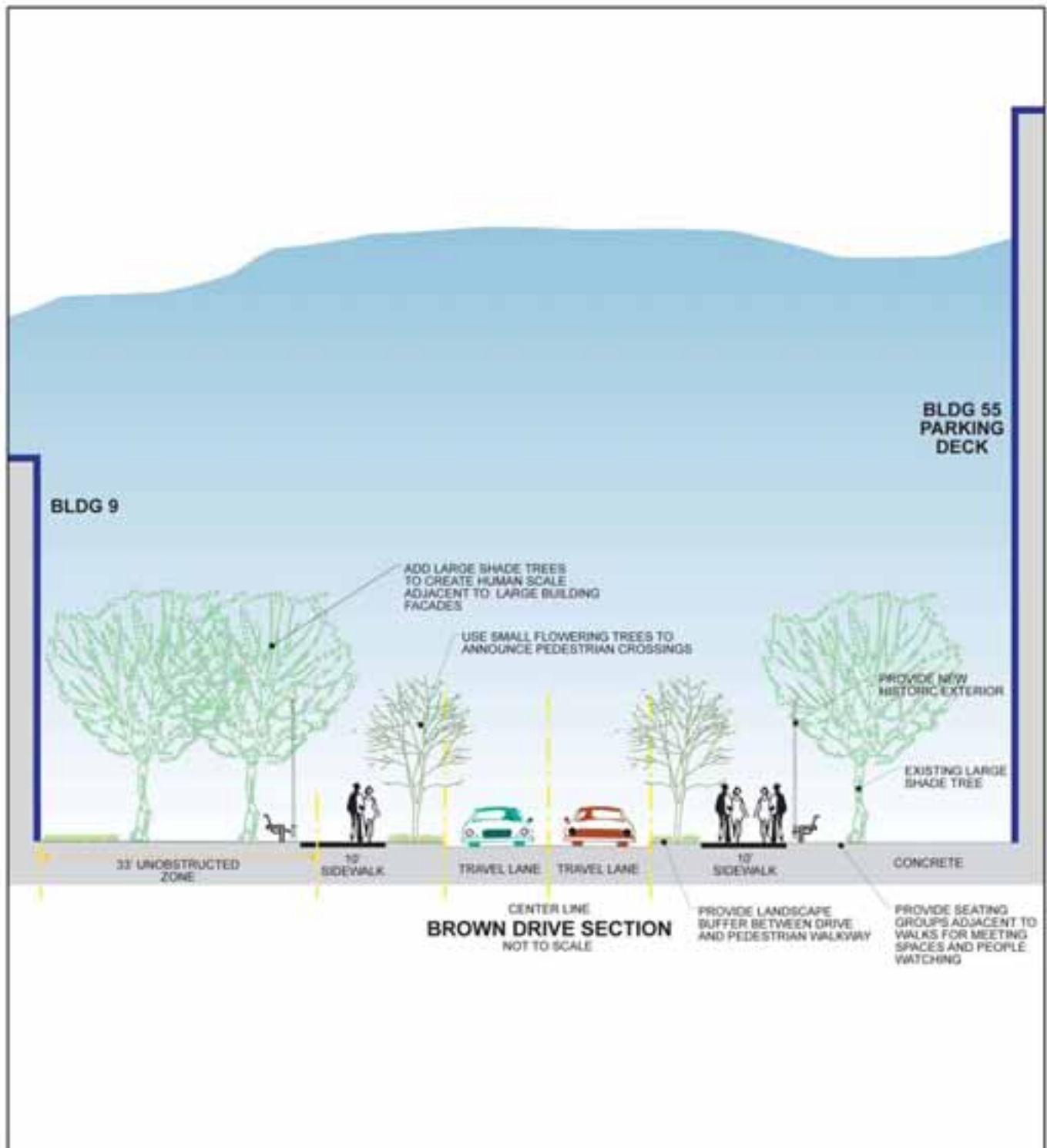


Figure 6-6

NNMC

Update 2008
Bethesda Campus

Brown Drive
Streetscape Section

- **Regulatory/Safety** - traffic and parking control, safety and warning signage.
- **Information** - transit information, public announcements, etc.
- **Interpretive** – NNMC tour signage, plant species signage, etc.

Figure 6-7 Signage Plan illustrates the key signage categories proposed above. Visitor and staff entries should be clearly signed with a prominence denoting the entrance to a major medical institution. Key directional signage should be provided at the first major intersection inside each entry for vehicles and pedestrians. The same signage should also be provided at all major intersections with the major “loop” roads on campus. Loop road signage should be consistent and clearly associated with the major campus thoroughfares.

Signage should be clearly legible and of a quality appropriate to the NNMC. Each signage type should be clearly recognizable and placed in such a way to avoid visual clutter. This practice will allow the signage to function properly as a navigational tool.

6.5.5 Exterior lighting

Exterior lighting consists of road and pedestrian path lighting with specific lighting control zones indicated in Figure 6-8 Lighting Plan. Primary entry lighting is limited to the North and South entrances along Rockville Pike. Secondary entry lighting occurs at each entry point along Jones Bridge Road. Primary loop road lighting is located along major thoroughfares such as North and South Palmer Roads, East Palmer Road and Brown Drive. Secondary road lighting occurs along most other roadways and drop-off areas. Pedestrian path lighting follows similar guidelines with lighting classified by roadway type. An Architectural Light Control Zone has been established along the Wood Road loop in front of the tower and flanking buildings. Lighting within this zone must complement the architecture with respect to form and function. Fixtures must be of high quality materials reminiscent of the original fixture designs in this area. Each lighting type should be clearly distinct in order to reinforce the hierarchy of the campus plan and to unify the campus as a whole. In most perimeter locations at campus boundaries Light Control Zones have been established to minimize light pollution into surrounding areas. A significant portion of the perimeter is surrounded by residential neighborhoods with back yards at the NNMC boundaries. Likewise, these zones seek to establish quality lighting scenarios within the Comfort Zone of campus along Jones Bridge Road.

In general these guidelines seek to minimize light pollution and to provide a safe and aesthetically pleasing environment within and around the NNMC campus.

In concert with pedestrian paths and building entries, lighting scenarios in general should clearly indicate entry paths with clear connections made back to major sidewalks or parking areas. For buildings with multiple entries

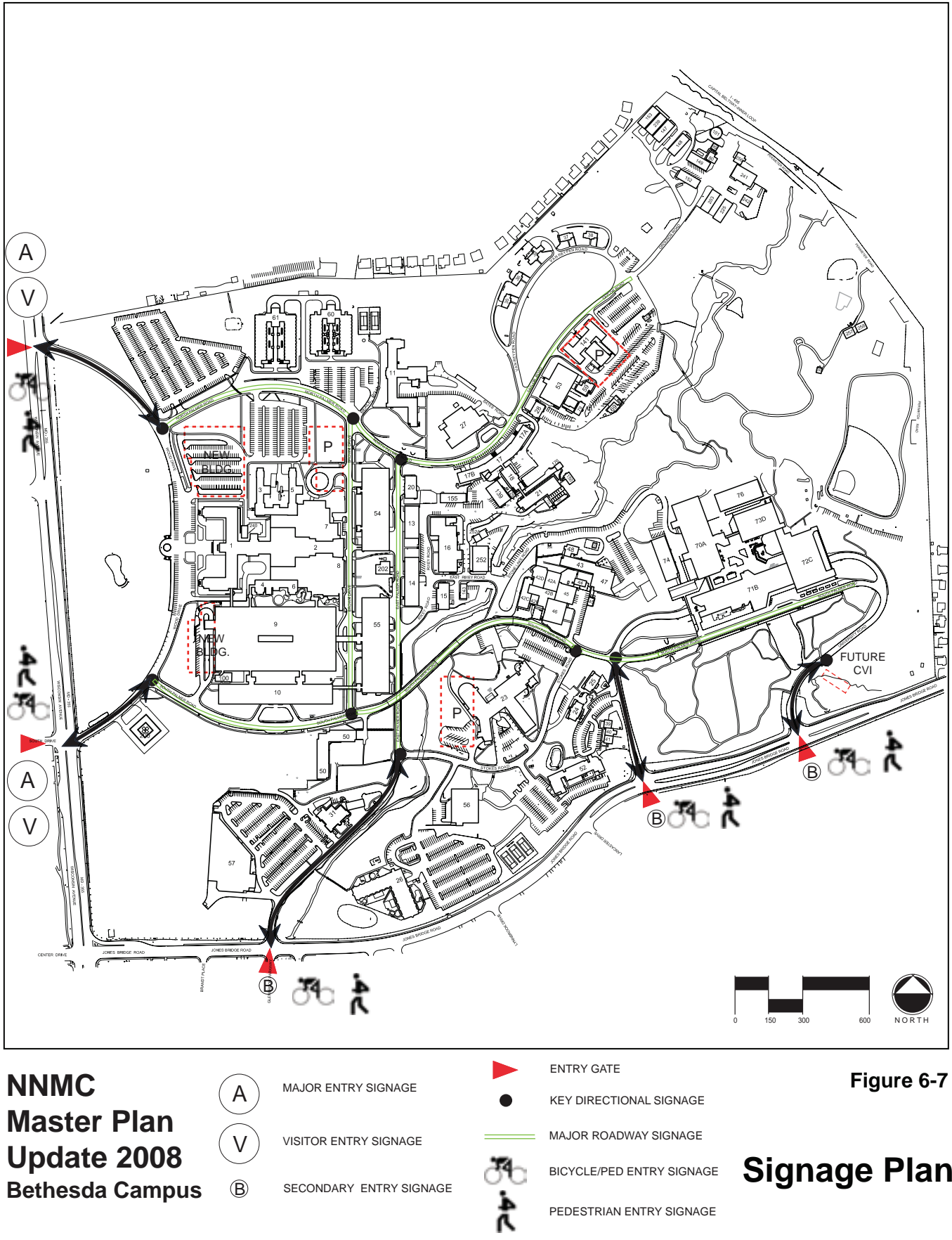
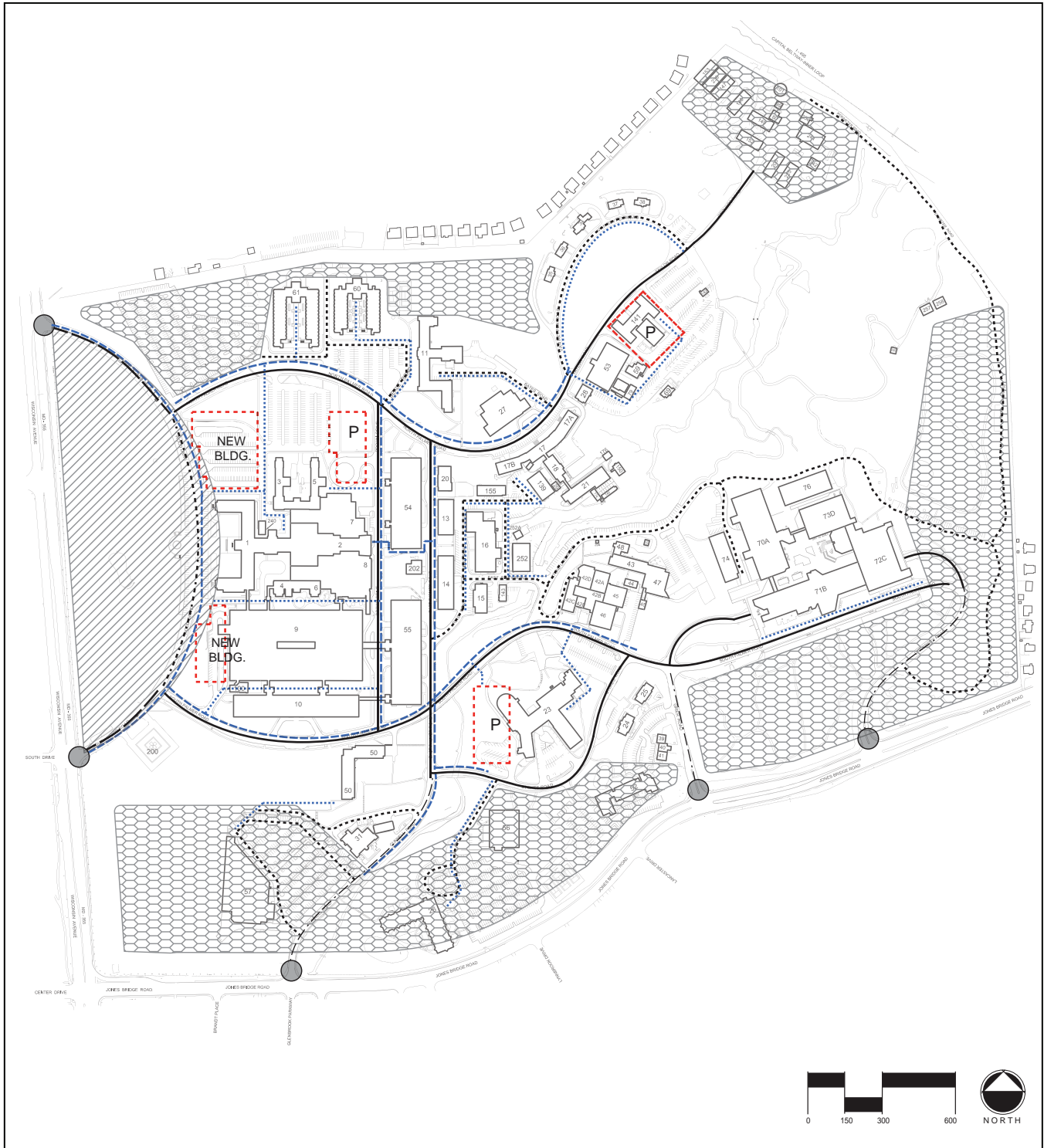


Figure 6-7

NNMC
Master Plan
Update 2008
Bethesda Campus

Signage Plan

MASTER PLAN
NATIONAL NAVAL MEDICAL CENTER
BETHESDA, MARYLAND



NNMC
Master Plan
Update 2008
Bethesda Campus

- PRIMARY ROAD LIGHTING
- - - SECONDARY ROAD LIGHTING
- - - MAJOR PEDESTRIAN PATH LIGHTING
- - - SECONDARY PEDESTRIAN PATH LIGHTING
- ▨ LIGHT CONTROL ZONE
- ▨ ARCHITECTURAL LIGHT CONTROL ZONE
- CONTROLLED ACCESS GATE
- - - FENCELINE

Figure 6-8

Lighting Plan

establishing a visible hierarchy of entrances can aid in way finding for staff and visitors. Unless already clearly visible at night, major directional signage should be lighted during the evening to facilitate nighttime way finding.

Lighting fixtures for each of the scenarios indicated above should be of a single fixture type and should incorporate energy-efficient lamps which require minimal maintenance. Metal halide, high pressure sodium and compact fluorescent lighting are preferred. Mercury vapor lighting is discouraged in addition to “wall-pack” fixtures mounted on the sides of buildings. Emphasis should be on quality and efficiency of lighting for calculating the proper quantity of light for a particular area. Lighting designs should consider their respective contexts so as to allow them to inform the design and contribute to the space.

6.6 Conclusion

The Development Guidelines set forth in the 2008 Master Plan Update are intended to uphold the missions, character and integrity of the NNMC campus. Although the presence of the NNMC extends beyond its physical boundaries, establishing these guidelines ensures that the presence of the historic context is maintained. Intelligent planning measures such as those set forth in this document protect this context and allow it to evolve in a sensitive and site-specific manner.

These Guidelines are a living document. Care has been taken to recognize and appreciate the ongoing evolution of the NNMC. Furthermore, these guidelines should serve as a framework by which future development opportunities can contribute to the NNMC campus and overall mission of the Institution.